MAR 5 1928

PAPER TRADE JOURNAL

Vol. LXXXVI, No. 9 MARCH 1, 1928 Per copy 10 Cents Per annum $4.00

Showing Beloit Removable Fourdrinier rolled out by power as a unit proper story to stringing wire. Alignment of rolls is not disturbed. Rolls, savealls and suction boxes are not dismantled. The table rolls out as a unit, making the task of stringing wires simple indeed.

Perfect Alignment Maintained With The Removable Fourdrinier

WHEN changing wires, the superiority of the REMOVABLE Fourdrinier method becomes immediately apparent. There's no dismantling of rolls, suction boxes or savealls—no heavy lifting. Sliding out the entire table part automatically by power as a unit makes it possible to string new wire quickly and efficiently, free from the confusion, entanglement and difficulties encountered when dismantling and re-assembling is done inside the wire. Perfect alignment of all running parts is thus assured, as they are not touched in the process of changing wires on the REMOVABLE Fourdrinier.

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That intangible something

is satisfaction built upon quality of the product ... upon the various services given unstintingly ... upon the feeling of confidence engendered by frank and fair dealing.

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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — F. K. HOPPIE, Secretary

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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXVI, No. 9. Thursday, March 1, 1928

Fraser Companies Start Third Paper Machine

Expansion Will Increase Production of High Grade Sulphite Papers by Sixty-five Tons Daily—Machine for Producing Heavy Weight Sulphite Papers Is Now Approaching Completion and Is Expected To Be In Operation by April—Canada Paper Co. Puts Into Effect Reconstruction Policy at Its Plant at Windsor Mills To Increase Efficiency

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 27, 1928.—The Fraser Companies have just brought their third fine paper machine into operation, adding 65 tons per day to the output of the Madawaska mill. Last year the company had a high grade sulphite paper output of approximately 80 tons per day from two machines, so that its present output is at the rate of 145 tons per day. A machine for producing heavy-weight sulphite paper is now approaching completion, and should be in operation about the middle of April. After the 1st of May the output of sulphite paper will be approximately 175 tons, as against a 1927 production of 80 tons per day.

Fraser Companies' Earning Higher

The annual report of Fraser Companies, Limited, for the year ended December 31 last, which has just been sent out to shareholders, shows net earnings for the year of $111,129 over the previous year's figures, the total being $1,672,594, as against $1,561,825, while the surplus carried forward was $231,194, or $62,232 more than the preceding year.

The earnings in the previous year were of course derived from the companies' then existing productive capacity of approximately 20,000 tons sulphite paper, 42,000 tons bleached sulphite pulp and 18,000 tons unbleached sulphite pulp, and do not reflect any portion of the increased earning power to be derived from the doubling of finished high grade sulphite pulp and paper production through new plant construction being carried out.

During 1927 the company disposed of 900 square miles of timber lands for a substantial consideration, following which the $2,231,500 principal amount of 7 per cent mortgage bonds of your subsidiary, Stetson, Cutler and Company, Limited, were called for redemption on February 20, 1928. Subsequently the name of Stetson, Cutler and Company was changed by Supplementary Letters Patent to Restigouche Company, Limited, all the outstanding capital stock of which continues to be held by the company; and in January, 1928, 1,500,000 first mortgage bonds of the Restigouche Company were issued, bearing interest at 5½ per cent per annum. All of the preferred shareholders elected to convert their shares into common stock.

The president in his report sets forth these particulars and remarks: "During the year under review, important developments took place affecting the capital structure and business of your company. In September you were advised of a proposed program of plant extension, comprising the addition to your manufacturing capacity at Edmundston, N. B., of approximately 250 tons per day of sulphite pulp, ground-wood pulp and sulphite board, and in the addition of approximately 200 tons per day of sulphite paper and board manufacturing capacity to the plant of your company's wholly owned subsidiary, Fraser Paper, Limited, at Madawaska, Maine. This program was approved at a special general meeting of shareholders held on the October 20, 1927, as were also certain necessary capital provisions.

"The following joined your board of directors during the year under review—George H. Mead, chairman of the board of directors of Abitibi Power and Paper Company, Limited; John H. Price, president of Price Brothers and Company, Limited, and Donald A. Fraser."

Canada Paper Reconstruction

A reconstruction program involving a large expenditure is being carried out at the Canada Paper Company's mills at Windsor Mills, Que., the objects being to increase the efficiency of the equipment, increase the production, improve the grades, and widen the company's markets. There are four paper machines in the plant, with complementary sulphite and ground-wood installations. The company is controlled by the newly formed Canada Power and Paper Company.

Reforestation Plans

Within a few years there will be an annual reforestation of twice as many trees as are cut in the Province of Quebec, according to Gustave C. Piche, chief of the Provincial Forest Service. It is hoped this year to plant 3,000,000 saplings in the Province. Last year 1,600,000 were planted. This is in addition to the hundreds of thousands which are planted every year by the Provincial Roads Department along the highways.

Making Survey for Willapa Plant

L. A. DeGuere, chief engineer for the Willapa Pulp and Paper Company, which is starting a plant at Raymond, Wash., is on the ground making a survey. S. J. Selden and B. H. McGillicuddy, engineers of Tacoma, Wash., are also assisting in this preliminary work. Certain streets in Eklund Park which were on the site of the proposed mill, have been legally vacated. J. H. Hennesy, resident manager for the company, has been on the site for some time.

May Start Bag Factory at St. Helens

The St. Helens Pulp & Paper Company, St. Helens, Ore., is said to be contemplating the addition of a unit for the manufacture of bags. This will probably be the next project at this plant.

Forestry Conference to be Held at Milwaukee

Paper Manufacturers of Wisconsin Vitally Interested in Meetings Scheduled for March 28 and 29 Under Auspices of U. S. Chamber of Commerce and Milwaukee Association of Commerce—Practically All Paper Mills in State to be Represented at Sessions

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., February 28, 1928.—Extensive backing is being given by paper manufacturers of Wisconsin to a commercial forestry conference to be held March 28 and 29 at Milwaukee. The meeting will be held under auspices of the Chamber of Commerce of the United States, and the Milwaukee Association of Commerce.

In view of recent legislation, it is now possible to work out in Wisconsin a practicable program for preservation of the remaining timber, and for reforestation. Paper mills see in this conference an opportunity to start such a program into operation and therefore will be strongly represented at the meeting.

One of the phases of conservation that will be brought up is the encouragement of land owners in the growing of commercial forests. Part of the areas set aside thus would be devoted to trees of pulp wood species, according to the tentative plans that have been drafted. It is believed that a start made now will produce new forests by the time the Wisconsin timber supply otherwise might be exhausted.

D. C. Everest of Wausau, Wis., president of the American Pulp and Paper Association, is taking part in the arrangements. Practically all of the paper mills in the state will be represented at the sessions.

The timber interests have the backing of the Wisconsin Conservation Commission in their efforts to stop the wholesale slashing of timber, and the annual ruination by forest fires. With Wisconsin producing the second largest amount of pulp in the United States among sixty companies, it is believed that it will be possible to grow jack pine, poplar and hemlock rapidly enough so it will not be necessary to go afield to obtain raw materials.

Reforestation will be helped considerably this year by the state conservation commission, since nearly two million pine seedlings and transplants will be given out to those desiring to set aside lands for timber growing. The state has 235,000 four year old transplants also of white, Norway, jack and Scotch pine.

Establishment of municipal forests is being urged by C. L. McLaren, forester of the Tomahawk Kraft Paper Company, of Tomahawk, Wis., as another means of providing more timber. He has induced several cities to establish such tracts.

Paper Industry Leaders Praised

Praise for the leadership of the paper industry in the safety activity of Wisconsin was voiced in an address before the Foremen's Safety School at Appleton, Wis., by Fred M. Wilcox, chairman of the Wisconsin Industrial Commission. The attendance at the dinner held last week was 350.

"This is the center of the papermaking industry," said Mr. Wilcox. "The accomplishments of this one Wisconsin industry in accidence prevention is so outstanding as to provoke a nation-wide applause. Don't think for a minute that these records just happen. They are built by men who have pledged themselves to the most worthwhile of present day undertakings. The heart of the accomplishment is to be found in the breast of your chairman, and the Shattucks, the Rosebushes, the Wertheimers, the Everests and the Meads. You will find the pulse of the movement in the good right arm of the Peacocks, the Hoymans, the Ashes and others whose names will come to you." The chairman of the meeting was C. A. Fourness, assistant general manager of the Kimberly-Clark Company, Neenah.

Family Succession in Paper Business

Family succession in business is illustrated at the Consolidated Water Power and Paper Company, of Wisconsin Rapids, Wis., where the two sons of George W. Mead, president, have become associated with this big news print enterprise. The sons, Walter L. and Stanton W. Mead, both are recent graduates of Yale University.

Stanton learned the business by starting as a wet machine hand, and then working at various jobs until he was familiar with paper making. He now is production manager, a member of the board of directors and treasurer of the company.

Walter is three years younger and has not been associated with the company for as long a time. He chose the office end of management, and is now the personnel manager of the company.

George W. Mead, the father, has been associated with the company since 1902. He undertook to develop the water power and build the Wisconsin Rapids mill as soon as he became active in the company. The growth has been rapid, until today the Consolidated Company has mills in both Wisconsin and Canada.

News of the Industry

A remarkable safety record for small mills was achieved by the Falls Manufacturing Company, of Oconto Falls, Wis. Up to the time of an off time accident several days ago, the employees went for 724 days without a lost time accident.

Another interesting record at the mill was the folding of 19,000 pounds of paper in one day by girls working in the finishing room. This was considered a real production record, considering the number employed.

An accident last week in which a workman in the boiler room wrenched an ankle put an end to 75 consecutive days of perfect safety at the Fort Howard Paper Company, Green Bay, Wis. The man stepped on a small lump of coal and twisted his foot so badly that he was laid up for several days. The employees are starting over again, determined to achieve a better record.

Vaccination of practically every employee of the Northern Paper Mills, Green Bay, Wis., has taken place during the last few weeks. This precaution was taken because of the amount of smallpox in the city, and the fear that contagion might be spread by workmen coming from affected homes. The procedure is purely a voluntary one and is meeting with good response. The company is commending the workers for this step, because the mill makes paper towels, toilet paper and other sanitary products.

D. C. Everest, of the Marathon Paper Mills Co., Rothschild, Wis., has been appointed by the Chamber of Commerce of the United States, on a committee that will study the problems of local taxation. His Wisconsin associate on the committee of eighteen is F. H. Clausen, president of the VanBrunt Manufacturing Company, of Horicon, Wis. Faced by tax conditions in Wisconsin that are not favorable to industry, these men have devoted considerable effort to a revision of the state system. They therefore are ably qualified for their work on the national committee.

A second fatality has taken place at the new dam under construction by the Northern States Power Company, at Chippewa Falls, Wis. Several days ago, Frank Luebke, a carpenter, met his death when he fell 30 feet into the rocky bed of the Chippewa river, Another workman was killed shortly after work started on the dam last August.

Basketball teams of all mills of the Kimberly-Clark Company will take part in a mill championship tournament to be staged at Niagara, Wis., on March 2 and 3. Mills represented will be those at Niagara, Neenah and Kimberly, Wis., and Niagara Falls, N. Y.

W. C. Wing, president of the Fox River Paper Company, Appleton, Wis., and Mrs. Wing are enjoying a southern trip. They are planning to go to San Francisco, Cal., by way of the Panama Canal, and will return home from that point.

Wherever paper is made
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Paper Demand Generally Improves In Chicago

Business Appears to be Picking Up in All Lines of Paper and Future Outlook is Quite Encouraging—General Tone of Sulphite Bond Is Much Better—News Print Paper Continues in Strong Position—Specialties Are Faring Exceptionally Well

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., February 27, 1928.—An unusually large number of Chicago paper men vacated the city last week to attend the meeting of the National Paper Trade Association and the Salesmen's Association of the Paper Industry in New York. Those that remained at home are evidencing unusual interest in the proceedings and are seemingly very anxious to hear the results of various discussions that have been current talk since the last meeting of the Association.

Business has picked up in all lines, according to reports, and paper men confidently expect to go ahead into 1928 with the advantage of better than the ordinary conditions they have experienced for some time. February is reported as an improvement over January.

All lines reflect general improvement. Sulphite bond is improving in general tone as well as numerous other lines. News print seems to be bent on an excellent 1928, while fine paper, krafts and specialties are faring very well. Although progress is slow, what was expected of 1928 is materializing to a certain extent. Reports of continued over production in container board are noted.

General business conditions in Chicago and this section of the country are fair. Merchandise is being bought in rather small quantities and very carefully. Collections are slow but money on the whole is plentiful. Chicago paper merchants are uncovering a good amount of business but they are also putting out a lot of selling effort to get it and hold it.

New Mead Offices Opened

The G. H. Mead Company, Dayton, Ohio, recently opened an office in Chicago in Room 1919, Tribune Tower. C. A. Lewis will be the representative in this territory for the news print house. The G. H. Mead Company is a part of the Canadian Newsprint Corporation, handling the western sales of this organization. Tribune Tower will shortly rival the Conway Building in the number of sales representatives in the paper industry that it contains. The Builders Building also took a number of mill representatives from the Conway Building.

E. H. Kniep Resigns

E. H. Kniep, connected with the Graham Paper Company for 29 years and for 15 years manager of the Chicago division, resigned from that organization on February 15 and plans to go into business for himself. When interviewed by the representative of the PAPER TRADE JOURNAL, Mr. Kniep said that definite plans for his new business would not be ready for publication until next week when they will be announced to his many friends in the paper business.

New Sales Literature

Two splendid examples of the type of selling literature being sent out by progressive paper houses are found in the current issue (number 32) of Westvaco "Inspirations for Printers" sent out by the West Virginia Pulp and Paper Company and a sample booklet of Lodestone cover stock sent out by the Hampden Glazed Paper & Card Company, Holyoke, Massachusetts, the booklet being entitled, "That Modernistic Touch." The Westvaco "Inspirations for Printers" illustrates and discusses the influence of the art of the great decorative periods on modern design in the printed literature and advertising of today. The body of the booklet is printed on Marquette Enamel while other pages are printed on Clear Spring India finish and Clear Spring Text, white.

Palmer-Hamilton Co. Removing

The Pilcher-Hamilton Company will move its office to the new warehouse at 349 West Ontario on the 27th. The remainder of the warehouse stock will be moved as quickly as possible. The new offices are described as the most modern, comfortable and attractive not only in Chicago but in the paper industry with ample facilities for conducting the rapidly growing business of this well known paper house. For those visitors in Chicago who have often called Pilcher-Hamilton by phone, the phone number will remain unchanged—Superior 5770.

News of the Trade

The Northwest Paper Company, Cloquet, Minnesota, manufacturers of Klo-Kay English Finish book, has recently announced the appointment of the Whitaker Paper Company as distributors of their well known line of Klo-Kay Book and Writing papers.

J. H. Thickens, formerly general manager of the Mead Fibre Company, Kingsport, Tennessee, passed through Chicago last Friday on his way to Laurel, Mississsippi, where he has taken the position of manager of the Mason Fibre Company. Mr. Thickens visited friends in Chicago on both Friday and Saturday before leaving for Laurel.

C. E. Carpenter, formerly with the A. D. Little Company, Cambridge, Mass., will be associated with the Container Corporation of America after March 1 according to word received from the latter organization. Mr. Carpenter will be connected with the experimental departments of the Container Corporation.

C. H. Phipps, sales manager of the Watab Paper Company, Sartell, Minnesota, went through Chicago last week on his way to the convention in New York. He stopped in this city long enough to advise his friends that he would return Saturday for another short visit.

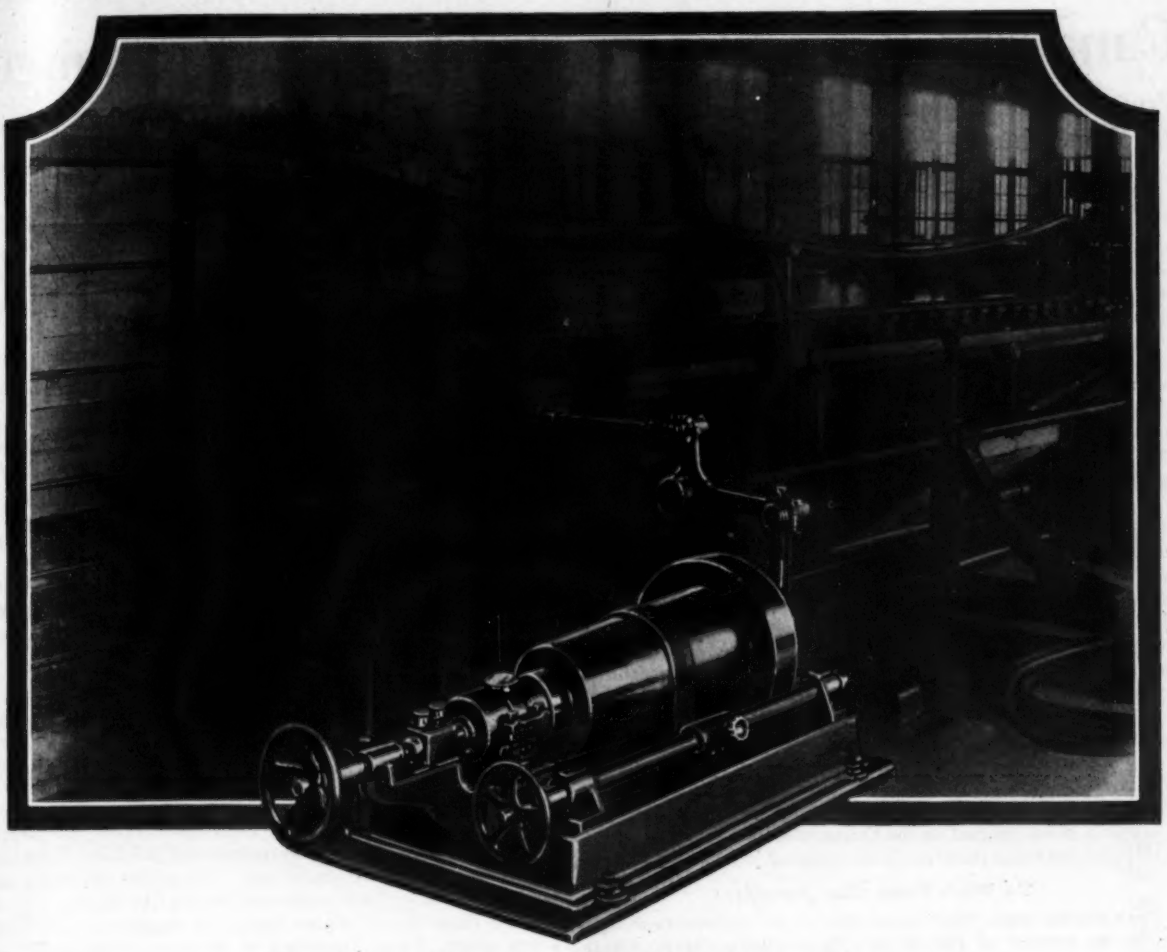
Among the many Chicago representatives at the meeting of the National Paper Trade Association and the Salesmen's Association of the Paper Industry were the following: Jim Coy, Flambeau Paper Company; George K. Gibson, Wausau Sulphate Fibre Company; Walter Cox, Paterson Parchment Paper Company; Ray Russell, Marathon Paper Company; Dana Pratt, Butler Paper Company; Noble Gillette and Jim Smith, Chicago Paper Company; N. A. Schoenbucher, H. W. Suter and Logan G. Thomson, of the Champion Coated Paper Company, Hamilton, Ohio; J. D. Reed, Cleveland office of Champion; John Aust, St. Louis office of Champion; C. A. Labor, Philadelphia office of Champion; Edgar A. Hall, Jr., Pilcher-Hamilton Company; W. H. Mahnke and H. B. Law, Dwight Brothers Paper Company; Forrest Hopkins and Courtney Reeves, Paper Mills Company; E. J. Schmidt, Parker, Thomas & Tucker; J. B. Jones and George S. Johnston, Western Newspaper Union, Omaha, Nebraska.

A New Clasp Envelope

CLEVELAND, Ohio, February 27, 1928.—A new envelope has entered the national field, marketed by carefully chosen exclusive distributors in all sections of the East and Middle West. The envelope is the Silvertone Clasp, manufactured by the Standard Envelope Manufacturing Company of this city.

Some of the features advanced for this envelope are its strength, comparable to the toughest clasp envelopes, and its cover stock beauty. The envelope is a distinctive shade of gray. Because of its color and finish it will not show soil from handling.

The Silvertone envelope is unique in that it was first carefully tested out for two years in the makers' local territories. Only after a decided demand had been built up among national advertisers was the envelope placed with distributors. An intensive advertising campaign in publications reaching the printer, advertising man and sales manager, started January 1, listing all distributors.



Precision Adjustment While Running

The Keystone Shake Mechanism for high speed removable fourdriniers is adjustable, both as to speed and throw, while the machine is running. It is of simple, durable construction assuring long, trouble-free performance. Hand Wheels permit "micrometer adjustment" of shake to the exact requirements of the machine and paper. Furthermore, the shake is easily and quickly detached for removal of wire part.

This is only one of the many new features in the Keystone Removable, Quick Change Fourdrinier. Let us tell you about the others.

Our Products Meet Our Promises

KEYSTONE Fourdrinier

Downingtown Mfg Co. Downingtown Pa.

Canadian Paper Trade Dislikes Tariff Changes

Protection for Dominion Paper Industry Practically Wiped Out by New Budget — Foreign Manufacturers Will be Able to Undersell Canadian Mills—News Print Market Not Affected by Alterations—China Clay Plant Nearly Completed in Ontario

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, February 27, 1928.—According to leading representatives of the book and printing paper sections of the paper industry in Canada, protection for the paper industry is practically wiped out in the new tariff changes brought down in the Robb budget in the Ottawa House a few days ago. Here is what an official of one of the big paper mill corporations said of the new budget: "I don't think the press or the public generally have realized the tremendous changes in the tariff as it affects the paper industry. It is virtual free trade. The present tariff is approximately 25 per cent on the grades of paper in question, book and printing paper. This protection is reduced to 80 per cent drawback. This is so radical in its changes that the industry has suffered a severe blow. It is laid open to the competition of the world, from the United States, Germany and other countries which, by reason of their immense manufacturing capacities, can easily undersell Canadian mills in this paper. The American tariff is 25 to 35 per cent and by the new tariff that is cut to 5 per cent on some classes and 6 to 7 per cent on coated paper. They are our nearest competitors and we do not see how we can sell against their big protected market. The same applies to the German trade. The British preferential rate has been brought down to 2½ per cent.

"We have been working on this tariff for the last six or seven months with the Tariff Board and we are confident that the change is not made by their suggestion. We believe it is the result of pressure by Liberal and Progressive interests in the west. The original application came from the United Farmers of Ontario." News print is not affected, as the Canadian market rules the world in this and protection therefore is not required.

To Work China Clay Deposits

The Canadian paper trade is interested in the announcement that before the summer of 1928 is over the Northern Ontario China Clay Corporation expects to have its plant completed at its property on the east bank of the Mattagami River, at the foot of the Long Rapids, about eight miles further north than Smoky Falls. The president, William Douglas, states that the company is financed for the building of the plant and bringing it into operation. A new mill will be at work on the preperty within the next few weeks. The Northern Ontario China Clay Corporation is a six million dollar company and the property consists of 400 acres. The three general products in the deposit are fire clay, china clay and silica sand. It is claimed that the china clay found is in the finest English china clay class. It is used mostly in the coating of paper and in the filling of it.

Progress at Great Lakes Plant

More than 450 workmen are employed at present on the construction of the new paper and sulphite plants of the Great Lakes Pulp and Paper Company at Fort William. Progress of the most satisfactory nature is being made with construction activities, declared Joseph Dwyer, manager, this week. The moderate weather conditions prevailing this winter have afforded the company an opportunity of pushing the construction work ahead at a fine rate of speed and it is confidently expected that the first paper plant unit will be in operation by June 1 this year. Great quantities of structural material are being assembled at the site of the new plant daily and with nearly half a thousand workmen busily employed the site is the scene of great activity.

Paul Hass Goes to Oregon

Paul Hass, who for some time has been superintendent of the Fort Frances Pulp and Paper Company at Fort Frances, Ontario, has resigned his position with that company to accept charge of the Howell Paper Company mills at Oregon City, Oregon. His resignation was effective February 15. It is stated that Mr. Rickenson, electrical engineer, will succeed Mr. Hass as superintendent of the Fort Frances plant.

Presentation to H. E. Livingstone

In recognition of his able services as chairman of the Coarse Paper Council during the past four years, H. E. Livingstone, of H. E. Livingstone & Co., Toronto, was presented with an illuminated address at a luncheon of the Council in Toronto a few days ago, the presentation being made in behalf of the Council by S. J. Frame, the secretary. There were present at the luncheon in addition to the guest of honor: T. Albert Brown, Brown Bros, Ltd.; John F. Taylor and G. D. McPherson, the E. B. Eddy Company, Ltd.; Leo E. Charles, Victoria Paper and Twine Company, Ltd.; C. V. Syrett, C. V. Syrett Paper Company, Ltd.; W. R. Currie, Dominion Paper Company; T. W. Tite, Brompton Pulp and Paper Company, Ltd.; H. A. Goldsbrough, Hodge-Sherriff Paper Company, Ltd.; Fred L. Ratcliff, Ratcliff Paper Company, Ltd.; S. J. Frame, secretary Coast Paper Council.

News and Jottings of the Trade

The Rudd Paper Box Company, Ltd., Richmond street, Toronto, are considering the erection of a new factory on Addison avenue, that city, which will cost in the neighborhood of $100,000. Before a definite announcement is made, approval of the city must be secured for the purchase of certain properties now held by them as a thoroughfare. The Works Commissioner has recommended this sale and immediately upon its approval plans will be prepared for a one-story building 50x250 feet. This will be the second paper box factory to go into commission during the present year, the Telford Paper Box Company being now engaged in constructing a new plant. Victor Donaldson is the head of the Rudd Paper Box Company.

The sale of 7,000 cords of pulp and other wood in the Township of Louthran, Sudbury district, was announced at the Parliament Buildings in Toronto this week. The Mageau Lumber Company, of Sturgeon Falls, was the successful tenderer. It will pay $3.05 a cord for the spruce and $2.05 for the balsam.

William E. Coutts, Ltd., manufacturing stationers and greeting cards, Toronto, are installing new machinery for the manufacture in Canada of the Whitney line of tags and gift dressings, to be sold in Canada at the same price as in the United States. This is considered a development of some importance in the greeting card business in Canada.

The annual banquet of the Stationers' Association of Toronto took place at the King Edward Hotel, Toronto, a few days ago. Among the guests were W. P. Waddy, Charles Garvin and Ivan Allen, of the National Association of Stationers of the United States, and Charles F. Dawson, regional governor of District 13. At a business session in the evening under the direction of J. S. Luckett, of the Toronto organization, a broad survey of stationery conditions in Canada was made and the industry pronounced to be in a satisfactory position.

A quiet wedding ceremony was performed in Toronto this week when J. Smyth Carter, of the Ontario Press, and President of the Toronto Typothetae, was united in marriage to Mary Anne Little, of South Orange, N. J. Mr. and Mrs. Carter are spending their honeymoon in New York and vicinity. The groom is widely known in paper circles in Ontario.

"Paper, a Necessity of Life," was the title of a very interesting address delivered by C. V. Syrett, of the C. V. Syrett Paper Company, Ltd., Toronto, over a local radio station this week.

Du Pont Dyestuffs

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San Francisco, Calif.

Paper Market Drifting Along In Philadelphia

Price Concessions on Sizable Orders Said to Have Been Made by Some Prominent Mills—Stiffening of Values Reported in a Few Grades of Paper Specialties — Several Distributors Booked Good Volume of Fine Paper Orders During Past Week

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., February 27, 1928.—As the waning days of the month bring about a quieter trend in paper trading, the Quaker City industry drifts along pending the upward swing predicted for the coming month. There is little of consequence to the local distribution branch of the trade. Apart from the lack of other interesting business factors, the price situation has been occupying attention, with comments on what may be expected with the revival of spring activities in the industrial world. Though firmness is indicated among many lines there still is "sniping" on volume orders by prominent mills where sizable orders are obtainable. However, the offerings do not affect the general market and are taken advantage of by dealers who are ready with cash and have low stocks on hand. Alert paper men have been freely participating in the purchases offered in carload shipments and during the past week several consignments were received from such mills as are involved in the wholesale inducements.

Paper specialties were held firmly with a stiffening of values in a few grades. Grey bogus and building papers are in fair demand with steady prices. Corrugated products and chip boards have been favorably situated in the matter of quotations, the latter being held at $45, an advance of $2.50 since the first of the year and this despite the fact the board mills are not operating at capacity.

The day to day needs of customers keeps the fine paper branch of the local trade in a spotty condition. While a few of the wholesalers have been reported as enjoying a goodly volume of orders the distributors have been kept fairly busy with hand to mouth purchases. Those dealers who sell to larger printing and publishing concerns have been able to garner contract orders in fair volume throughout the past month.

New Papers Offered by S. Houpt & Co.

Among the attractive mill offerings that made the current week a lively one for S. Houpt & Co. was that of the new water finish butchers fiber introduced by the manufacturers representative in his rounds of the dealers. Frederick J. Smith, who called on the distributors as mill representative, introduced the latest of butchers fibers in the form of a water finished product of 35 pound basis and of excellent quality for the volume quoted. It was favorably received in the local coarse paper trade.

Graphic Arts Frolic

With a record breaking attendance the annual gathering of the allied industries in the Graphic Art Night celebration went down in history as the most colorful and gay ever yet held. For the Valentine Night on which the Graphic Art Frolic was scheduled the costuming was most appropriate, the participants being dressed in the garb of followers of Captain Kidd and his death defying gang of pirates. Trade associates from the paper industry and its consumers in the allied branches of the printing, supply, and other graphic art enterprises were resplendent in the variegated and picturesque costuming of pirates. Captain Kidd led the evening's entertainment, while the diners gathered at the tables scattered throughout the large banquet hall of the sumptuous Penn Athletic Club in Rittenhouse Square.

While the sterner members of the trade wore the skull and cross boned helmets of pirates and dirks and bags of gold in the bright hued trappings of their garments, the fair sex made its costuming equally as brilliant and realistic in high boots, highly decorated doublets and broad brimmed hats, to correspond to those of their escorts. W. T. Inness on behalf of the Graphic Arts industries made a brief introductory address, presenting his fellows, and Captain Kidd of the entertainers forces. Those on the Executive Committee who represented the paper trade were William S. Wilcox, of Wilcox Walter Furlong Company and Ralph G. Luff. of the D. L. Ward Company. Two prominent paper associates who in the past have extended the courtesy of the paper distribution branch of the graphic arts were regrettably absent. They were President Norbert A. Considine of the Paper House of Pennsylvania, who suffered the loss of his brother and associate in the preceding week, and George W. Ward, of the D. L. Ward Company, now on a six months sick leave in Tucson, Arizona.

In the absence of these prominent associates, James McCracken, of Reigel & Co., acted as host for the paper trade, along with George Weaver, of the Garrett-Buchanan Company; Harry Donahue, of the Molton Paper Company; Thomas Curry, D. L. Ward Company; Horace Lindsay, Lindsay Paper Company; Thomas Furlong, Wilcox Walter Furlong Company; John Franz, A. Hartung, Inc.; M. K. Christine, Raymond and McNutt; Leon Beck, Charles Beck Paper Company; Howard Satterthwaite, Satterthwaite-Cobaugh Company; Leonard Peck, Paper House of Pennsylvania and L. F. Supple, Whiting, Patterson Company.

Paper dealers who contributed to the long list of prizes distributed by Captain Kidd in the course of the entertainment were Garrett-Buchanan Company, Wrapping Paper Roll and Cutter; Raymond and McNutt, Ladies Correspondence Cabinet; Reigel & Co., Men's Correspondence Cabinet and A. Pomerantz, a Bridge table, won by Leonard Peck of the Paper House of Pennsylvania as a lucky trade drawer in the awards. Joseph Schaller, of the Whiting Paper Company, won an A and B Battery Eliminator. Following the award of prizes, the 1000 members of the Graphic Arts industries who attended the frolic joined in the entertainment program and dance which held until midnight.

Paper House of Pennsylvania Moves

Larger and more modern offices have been acquired by the Paper House of Pennsylvania for its combined warerooms and sales headquarters. Having for the past nine years been located at 28-30 North 6th street, the business is now removed just a door above the old location. With the larger facilities of the new home the two concerns linked with the local paper house will be housed under a single roof. The new location will be devoted to the offices and warehouses of the Considine Importing Company as well as the parent company, the Paper House of Pennsylvania. Attractively arranged offices on a single floor have been made available in the larger floor area of the new home. Other warehouses and a converting plant are operated by the company in other sections of the city.

Notables Attend Rites for R. J. Considine

Prominent men in all walks of life and many notables in the paper trade were present at the funeral services of R. J. Considine, of the Paper House of Pennsylvania, held on Friday of the preceding week. The services were conducted by the Rev. Robert J. Tracey, S.J., head of St. Joseph's College. There were sixteen priests in the sanctuary, while Paul Esling, world war veteran, and first lieutenant in the 79th Division, a classmate and chum of the late vice president of the Paper House of Pennsylvania, served mass. Uniformed members of the Benjamin Franklin Post, American Legion, were pall bearers. Most of them were officers in the World War. The Paper Trade Association of Philadelphia attended the rites in a body, while several mill men journeyed to the city to attend the funeral services.

Wilcox Walter Furlong Co. Executive Passes

In the recent death of Charles A. Scheble, the Wilcox Walter Furlong Company suffers the loss of one of its most valuable executives. Mr. Scheble was stricken with grippe and complications three weeks ago and passed away at his home last week. He was 37 years of age. He joined the company upon its organization

AEROPLANE VIEW, PLANT NO. 1—THE NEWPORT COMPANY, PENSACOLA, FLORIDA

THE FINE ESTABLISHMENT OF ACME PRODUCTS COMPANY, INC., DE QUINCY, LA.

Most of the NEWPORT and ACME WOOD ROSINS now so largely used by Paper Manufacturers, are produced in these extensive factories.

NEWPORT and ACME WOOD ROSINS, made from pine waste-wood, are essentially clean, uniform and dependable, just the qualities required for successful and economical production of paper.

The entire output of NEWPORT and ACME WOOD ROSIN is marketed by

GENERAL NAVAL STORES COMPANY, INC.

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90 West Street

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THE LARGEST AND OLDEST ORGANIZATION IN THE WORLD EXCLUSIVELY ENGAGED IN SELLING "STEAM DISTILLED WOOD TURPENTINE," PINE OIL AND WOOD ROSIN.

Address Any Company Office When Research Service Is Desired.

LABORATORIES AT CINCINNATI, O., PENSACOLA, FLA., and DE QUINCY, LA.

shortly after the World War and was general inside sales manager and mill buyer. Trade friends attended the services held in Oliver Bar Parlors. The Wilcox Walter Furlong Company closed its doors on the day of the funeral, in respect to the deceased.

H. H. Hanson Joins Hamilton Mill Staff

H. H. Hanson, who until recent days was connected with the Eastern Manufacturing Company, is now associated with the W. C. Hamilton Company in its mills at Miquon, near Philadelphia. Before joining the Hamilton Mills he was Technical Director of the Eastern Manufacturing Company in both its mills. He severed his connection with the Eastern company two weeks ago to become general manager of the local mills of the Hamilton Company.

Paper Box Manufacturers Organize Credit Bureau

A Credit Department has been organized as part of the services of the National Paper Box Manufacturers Association, with headquarters here in the Liberty Building at Broad and Arch streets. The new department will render valuable credit services to its members in the box manufacturing business and to its associate members in the supply and paper trades.

Box Makers To Meet in Boston

The local offices of the National Paper Box Manufacturers Association announce the annual convention of the New England Division to be held in the Hotel Statler, in Boston, on March 21.

Whiting Paper Co. Displays Papeteries

The standard 1928 lines of papeteries manufactured by the Whiting Paper Company are now on display at headquarters of the Philadelphia branch at 619 Chestnut street. There are more than 800 numbers to the 1928 year round sellers. The Gift Lines will be ready for display to the trade in mid March.

Waste Merchants to Dine

The Philadelphia Waste Merchants Association will hold their 23rd Annual Banquet on March 27 at the Hotel Lorraine, Broad and Fairmount avenue.

Boston Paper Market Conditions

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., February 27, 1928.—Demand for paper has averaged fair the last week. Conditions generally are about the same, with virtually no price changes. The outlook is promising.

The situation in box board as a whole is practically unchanged. There is a little better feeling among some of the box makers, although some of the box board dealers say that their business began to be rather quiet the previous week and has continued so. Others say that there have been some sales and some profit, but no "kick" to the market. One house, at least, had a greater volume of business in February than in January. It is stated that there is no price-cutting, but that there are no orders for overnight deliveries.

"It's tonnage that talks," says a paper stock dealer, who feels that the market is looking up in some quarters. In general, however, the demand is spotty. The situation in mixed paper remains the same, with the price at .45 to .50. The call for foreign manila rope is very quiet, and this commodity can now be obtained at 2.75 to 3.00, compared with a flat price of 3.00, previously quoted.

Paper Warehouse Destroyed at Poughkeepsie

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., February 27, 1928.—The Roberts-Boice Paper Company, of Poughkeepsie, sustained property loss estimated at $150,000 during the past week, when fire destroyed a large warehouse of the company. The blaze was one of the worst experienced in Poughkeepsie in some time and at times threatened the destruction of surrounding property. A large quantity of paper stored in the warehouse was totally destroyed. It is understood that the Roberts-Boice Company is protected by insurance.

One fireman was killed, another received injuries which may prove fatal, and six others were seriously injured when the walls of the warehouse collapsed burying the firemen under tons of debris.

Paul Priem Dead

Word has just been received in this country of the passing away of Paul Priem, doctor honoris causa, for many years the managing director of the pulp and paper machinery department of the well known firm of J. M. Voith, Heidenheim, Wuerttemberg, Germany. Complications superinduced by heart disease from which Mr. Priem had been suffering for a number of years, resulted in his death on February 2, at the age of 62.

Mr. Priem, well known to the paper industry not only in Europe but also on this continent, was one of the outstanding pioneers of the development of modern pulp and paper machinery, and his many and important inventions contributed materially to the present highly developed state of the industry.

Born in Saxony, Germany, on January 5, 1866, Mr. Priem entered the services of J. M. Voith in 1889 as designing engineer, his outstanding capabilities being quickly recognized by the then owner of the firm, the late Geheimrat Friedrich Voith who appointed him chief engineer of the pulp and paper mill machinery department in 1896, when Mr. Priem was only 30 years of age. In 1904 Mr. Priem was made managing director of the department which position he held until his death.

There is hardly a branch in the pulp and paper producing industry which has not benefited by Mr. Priem's inventive genius. He was the first person to obtain patents on the electric sectional drive of paper machines. He also first conceived the idea of facilitating the changing of wires by moving the whole wire part out of the machine laterally. The large capacity inward flow paper machine screen is another machine which was brought to the foreground through Mr. Priem's efforts. These and other inventions of Mr. Priem contributed much to the enormous progress made in building paper machines of ever increasing speed and width.

Still more fruitful than in the paper machine field were Mr. Priem's activities in the ground wood branch, and his genius and initiative along these lines were instrumental in bringing the manufacture of ground wood pulp to the highly developed and efficient state in which it is today. He was the inventor of the hydraulic magazine grinder which created such a profound impression some 20 years ago and directed the art of wood grinding into entirely new and highly advanced channels. Then, about ten years ago, Mr. Priem's mind conceived the continuous feed type grinder, and this invention and its development to its present state of perfection are the crowning achievements of an exceptionally active and fruitful life.

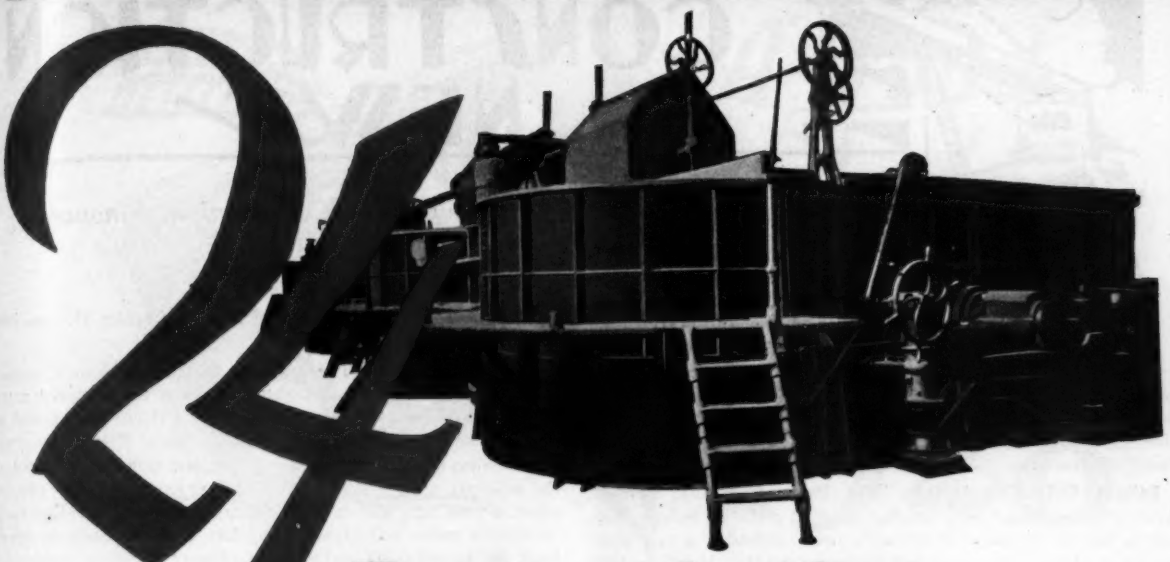
In appreciation of his great achievements in the development of machinery for the pulp and paper industry, the University of Darmstadt, Germany, two years ago conferred upon Mr. Priem the title of a doctor honoris causa.

Ralph Spencer Resigns

Ralph O. Spencer, who has been superintendent of the bag mill at Herrings, N. Y., of Taggart Brothers Company, has resigned, the resignation becoming effective during the past week. Mr. Spencer has become identified with the International Paper Company and will assume an executive position with the I. P. mill in Wellsburg, W. Va.

Mr. Spencer, who is but 25 years of age, is one of the youngest paper mill executives in the country. His home is in Watertown. In the short space of seven years during which he has been connected with the paper industry he has risen from the position of a minor clerk in the office of Taggart Brothers Company to general superintendent of the Taggart Bag mill in Herrings, one of the large bag mills of Northern New York. From 1922 until 1925 he served as assistant superintendent of the Watertown mill of Taggart Brothers Company going from this position to the superintendency of the Herrings plant.

Mr. Spencer has been a prominent member of the Watertown Exchange Club and was recently tendered a farewell banquet by fellow members of the club and presented with a leather encased toilet set. He left the latter part of the week for West Virginia to assume the duties of his new position.



Beaters in the Space of Eight

THINK of the tremendous increase in production without adding an inch to floor space! Think of the steady, sustained, dependable flow of stock to hungry paper machines!

This is an actual installation in a well known paper mill. Eight Hollanders were rebuilt to the new Noble & Wood High Density type with triple the capacity of the original beaters. Output jumped! Production jumped! Profits jumped! But overhead costs didn't!

FURTHER—this mill is making a higher grade product than ever before, because these beaters are turning out higher density, better hydrated, more uniform stock than was possible with the original equipment . . . and more of it.

We can do the same thing in any beater room . . . in *your* beater room. Modernize your plant . . . let our engineers show you the way. Write for full details.

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chattanooga, Tenn.—The Atlas Paper Box Company, 1303 Cemetery avenue, has completed plans for the construction of a new plant to be one-story, estimated to cost about $24,000, with equipment, and will proceed with work at an early date. A general building contract has been let to Rogers & Levanthal, Market street, Chattanooga.

Salinas, Cal.—The Arizona Wax Paper Company, Benson, Ariz., Charles Goetz, president, has selected a site at Salinas, Cal., and is said to be planning the early construction of a new plant for the production of waxed and processed papers. It will be two-story, 40x100 feet, reported to cost close to $50,000, with equipment.

Chico, Cal.—The American Fibre Products Company, 525 Bay street, San Francisco, Cal., is said to be considering the construction of a new plant in the vicinity of Chico, for the production of rice straw papers, strawboard and kindred products. The initial unit is reported to cost more than $65,000, with machinery.

Poughkeepsie, N. Y.—The Roberts-Boyce Paper Company is planning the rebuilding of the portion of its storage and distributing plant, recently destroyed by fire with loss estimated in excess of $100,000, including equipment and stock. Reconstruction will approximate a like sum.

Wellsburg, W. Va.—The George & Sherrard Paper Company, operated under the direction of the International Paper Company, New York, is said to have preliminary plans under advisement for an expansion and improvement program to double the present capacity. A department will be established for the production of special paper bags for cement, lime and kindred service. Estimated cost of project has not been announced.

Chicago, Ill.—The Stein Paper Box Company, care of Cobb & Eisenburg, 5 North La Salle street, architects, has plans under way for the construction of a new factory at Arthington and Tripp avenues; it will be one-story, 75x125 feet, estimated to cost close to $25,000, with equipment. It is understood that bids will soon be asked on general contract.

Minneapolis, Minn.—Buzza Clark, Inc., recently organized under Delaware laws, will take over and consolidate the Buzza Company, Minneapolis, manufacturer of greeting cards, card stocks and similar products, and the Charles S. Clark Company, 218 West 40th street, New York, producer of similar products. It is understood that present plants will be continued in service, and that a general expansion program will be arranged in the near future. The new company is disposing of a preferred stock issue to aggregate $1,150,000, a portion of the proceeds to be used for the consolidation, general financing, expansion, etc. George E. Buzza is president.

Three Rivers, Mich.—The Eddy Paper Corporation is said to have plans maturing for proposed extensions and improvements in its local mill, and will proceed with work at an early date. The program is estimated to cost close to $90,000, with equipment.

Brooklyn, N. Y.—The United States Paper Bag Company, recently formed by Max D. Fox, 1722 43rd street, Brooklyn, and associates, with capital of $20,000, is said to be planning the early operation of a local plant for the manufacture of paper boxes, bags, etc. Morris Glickman and Samuel S. Pariser, are also interested in the new company.

Indianapolis, Ind.—The Central States Envelope Company, East Washington street and Sherman drive, has acquired a tract of land adjoining its property consisting of 11 city blocks, and will use for future expansion; the site fronts about 360 feet on Brookville boulevard. It is understood that the company will not use the property until a later date. The present plant was extended about a year ago, and is now giving employment to close to 200 operatives under full capacity schedule, and will continue on this basis for an indefinite period. F. L. Fisher is general manager.

St. Louis, Mo.—The Missouri Fibre Package Company, Inc, recently formed by Michael Trautz, 4202 McPherson avenue, and associates, with capital of $10,000, is said to be arranging the early operation of a local plant for the manufacture of fiber as well as corrugated board, and similar containers.

Wheeling, W. Va.—The United States Corrugated Fibre Box Company is reported planning the construction of an addition to its local plant, to be one-story, estimated to cost more than $100,000, with equipment. The expansion will provide for large increase in present output. H. J. Lacey is in charge.

Chicago, Ill.—The Pomeroy-Schofield Company, 3917 South Lowe avenue, recently organized by Harry Pomeroy and M. E. Schofield, with capital of $20,000, plans the operation of a local works for the production of corrugated paper board containers, etc.

Cincinnati, Ohio—The Albershart Paper Company, Cincinnati, has been organized with capital of $40,000, to manufacture and deal in paper goods, and is reported planning the early operation of a local works.

Guttenberg, N. J.—The Colony Paper Box and Novelty Company, Jersey City, has leased factory property at 529 26th street, Guttenberg, consisting of a main three-story plant unit, and one-story structure adjoining. The Colony company plans to occupy at an early date for the manufacture of paper boxes, novelty containers, etc., and will install complete equipment for this purpose. It is understood that present works will be removed to the new location.

Holyoke, Mass.—The Marvellum Company, Holyoke, manufacturer of decorative paper specialties, vellum stocks, etc., has concluded negotiations for the purchase of the local plant of the Whitmore Manufacturing Company, Canal and Appleton streets, in receivership for some time past; the last noted company used the mill for the production of glazed paper products. The new owner is said to be planning to remodel and improve the property for expansion in present plant, and will occupy in the near future.

Plainfield, N. J.—The Wood Newspaper Machinery Corporation is disposing of a preferred stock issue to total $717,500, a considerable portion of the proceeds to be used for expansion in manufacture, particularly in connection with the development and sale of a new printing press for newspaper service. Henry A. Wise Wood is president.

Gatineau, Que.—The International Pulp and Paper Company, Ltd., Gatineau, is said to have preliminary plans under way for the construction of a new factory on local site for the production

A Good Slogan for 1928

ROSS SYSTEMS

Briner Economizers

(licensed under patents of E. A. Briner and John E. Alexander)

Ross Vapor Absorption System

Baxter Grinder Exhaust System

Grewin High Pressure Vapor Removal

Machine Room Heating and Ventilating

Heating Systems for Finishing, Beater and Storage Rooms

Drying and Air Conditioning Systems

Remodeling of Unsatisfactory Systems

In the

MACHINE ROOM, GRINDER, BEATER, FINISHING *and* STORAGE ROOMS.

This year, more than ever before, the elimination of waste and reduction in operating costs will be imperative in every department of the mill. One of the most disastrous sources of waste will be found in the lack of proper heating and ventilating or the prohibitive expense required to operate an inefficient heating and ventilating system. Tremendous savings are now made possible through utilization of waste vapor, reduction in steam costs, improvement in working conditions and production, in the varous sectons of a mill by means of scientific heating and ventilating. Now is the time to discuss with our engineers the requirements for securing these savings in your mill.

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208 W. Washington Street, CHICAGO — Main Office, 30 E. 42nd Street, NEW YORK — 1117 Tacoma Ave., TACOMA, WASH.

ROSS ENGINEERING OF CANADA, LIMITED

NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS

HEATING—VENTILATING—DRYING

of paper boxes. It is estimated to cost close to $25,000, with equipment.

New Companies, Etc.

Chicago, Ill.—Gaul & Ingalls, Inc., 1361 West Huron street, has been incorporated with capital of $15,000, to manufacture and deal in paper products. The incorporators are William A. Gaul, Edgar O. Ingalls and Bruce Hamilton.

Flint, Mich.—The Brownson-Fisher Wall Paper Company has been incorporated with capital of 600 shares of stock, no par value, to deal in wallpaper and kindred products. The incorporators are Osman E. Fisher and Charles M. Brownson, 830 East Seventh street, Flint. Last noted represents the company.

Boston, Mass.—Superior Cardline, Inc., has been incorporated with capital of $25,000, to manufacture and deal in card stocks, greeting cards, etc. Joseph A. Aaron is president; and Harry Goodman, 92 Devon street, Roxbury, Mass., treasurer and representative.

Chicago, Ill.—The Commercial Wall Paper Mill, Inc., 1416 North Tallman avenue, has filed notice of increase in capital from $250,000 to $300,000, for general expansion.

Detroit, Mich.—The Duplicator Paper and Supply Company, an Illinois corporation, has filed notice of organization to operate in Michigan, with a capital of $50,000, to manufacture and deal in commercial writing paper stocks, etc. R. M. McGuire, 51 West Hancock street, Detroit, is representative.

National Paper Trade Celebration

The change in the form of entertainment usually provided to wind up the convention of the National Paper Trade Association made last year, when a theatre party was held at the Imperial Theatre, followed by a dance at the Astor Hotel, was so appreciated by the members that it was decided to provide a similar form of entertainment for this year.

The theatre party was held at the Selwyn Theatre, where one of the biggest hits of the current season is being presented by Jed Harris, and every one present thoroughly enjoyed the unusually fine acting of the capable artists in "The Royal Family," by George S. Kaufman and Edna Ferber. This comedy is actually a good-humored burlesque on the life of a typical theatrical family, and was particularly appreciated by those who are familiar with the lovable qualities and characteristic idiosyncrasies of the theatrical profession.

While all of the artistes are worthy of mention, the good work of Haidee Wright as Fanny Cavendish, Ann Andrews as Julie Cavendish, Josephine Williams as Della, Sylvia Field as Gwen Cavendish, Otto Gruger as Anthony Cavendish, Jefferson DeAngelis as Oscar Wolfe and Orlando Daley as Herbert Dean, stood out with distinction and they certainly deserved the repeated recalls they received from the enthusiastic audience. "The Royal Family" is staged by David Burton, and James Reynolds is responsible for the settings.

Following the theatre the entire party was conveyed by motor buses to the Hotel Biltmore, where a most enjoyable supper was served in the Beautiful Cascades. During the evening dancing was thoroughly enjoyed by the guests to the strains of an excellent orchestra. The event was kept up until the early hours of the morning.

The opinion was freely expressed that the occasion was one of the most successful events ever provided by the Association and the arrangements reflected great credit on the entertainment committee which was headed by Robert R. Lasher, chairman.

To Shut Down Kaukauna Bag Mill

A shutdown of three weeks has been ordered at the bag department of the Union Bag and Paper Corporation, of Kaukauna, Wis., according to announcement of R. L. Jacoby, head of the mill. The reason is given as the lack of orders at this time. Most of the workmen have been shifted to the paper department of the mill so that they will not be out of employment.

Fifty-Two Years in Paper Trade

Fifty-two years in the paper business is long enough it is believed to credit Charles H. Wright with having seen the longest continued-service in that industry of any man now residing in the Kalamazoo valley district. Starting as a stock boy, Mr. Wright has been well up the line in the sales and executive ends of the business. He never worked for any extended period in the production end, activities along that line being confined strictly to his earliest days.

Mr. Wright has seen some interesting changes in the industry. When he started as stock boy with Chatfield & Woods, Cincinnati, back in 1876, most of the newspaper was made of straw and was known as straw news, selling at 10 cents a pound. He tells that he can well remember great barge loads of straw, 5,000 bales to the barge, being delivered at the mill as raw material. Ground wood was little known as news print raw stock.

"I was two years in the Chatfield & Woods mills," said Wright, "and my first teacher as a stock boy was the late Col. C. B. Wing, who afterwards came to Kalamazoo as vice president and sales manager of the Bryant Paper Company. Part of my career with that concern was in Cincinnati and part in their Busenbarks mill above Hamilton.

"I then went on the road as salesman. Paper was quoted by the ream and not by the pound. Bond paper was made from linen and cotton rags and not from sulphite in those days. All writing paper was made from rags and was known as 'fine,' 'superfine' and 'extra superfine.' These various grades were sorted in M, N, and X., that system of grading being rigidly adhered to."

After leaving Chatfield & Woods, Mr. Wright went with the fancy paper concern of P. H. Hake, New York and later opened his own sales brokerage office in Chicago.

It was in 1894 he went to the Garden City Stationery Company, Elkhart, Ind., as manager. One of his big deals' that attracted attention all over the United States was a widespread purchase of the "X" sorted raw stock, which was made into 20 carloads of tablets and sold in one order to the Fair, Chicago. This was shipped in a solid train load and the Fair made excellent advertising copy out of the incident.

Twenty-five years ago Mr. Wright came to Kalamazoo and with the help of F. M. Hodge, president of the Kalamazoo Paper Company, organized the Kalamazoo Stationery Company and erected the first unit of that huge concern. Three years later the Hopper-Morgan Company, Benton Harbor, bought out the business, Bertrand Hopper coming to Kalamazoo, at the time.

Mr. Wright then opened his own brokerage office and still operates under the name of Charles H. Wright & Son, although the son, Bailey Ayres Wright, has not been in the industry since the war, selling out when he entered the United States service as an aviator. This concern specializes in fancy finished papers, the line "Kalma" being nationally known and of excellen' uniform quality. This has been added to his original firm trade mark, "Made in the West." Trade is largely with jobbers.

Progress on New Board Mill

Rapid progress, according to reports from Toronto, Ont., is being made with the new plant of Dominion Boxboards, Ltd., a subsidiary of Dominion Envelope and Carton Company, Ltd. The machine room has been completed and the boiler and engine room is being erected and will be finished in a week or ten days. The sole plates are all laid, a portion of the beaters is erected and practically the whole of the equipment is well under way. The boxboard machine will be erected within five weeks time and it is hoped to start operating on April 15 next. Mr. Kennedy, of the Sandy Hill Brass and Iron Works, Hudson Falls, N. Y., says of the machine that it is the largest and finest of its kind that he has seen or knows of. The steam boilers of the plant will be oil-fired and they are also being constructed of such a design that, at any time, recourse may be had to pulverized fuel.

No Stock Suit can fit All men

... and no stock felt can fit All machines

Paper making conditions vary, machines vary, methods in different mills vary. That is why Albany Felts are tailor-made,—made to fit definite positions and definite conditions on definite machines.

The specifications of your machines, the conditions under which the felt will run, form the basis from which our designers pattern *your* felts. The definite blends of wool,—the yarn itself—strand count and twist—the weave design,—every detail is specified.

Checks and rechecks, continuous inspections and tests, make certain that the tailor-made Albany Felt you put on your machine will meet your own peculiar working conditions.

Make sure of dependable felt performance....standardize on non-standardized, made-to-order Albany Felts, for bottoms, tops,....every position where a felt must stand up and produce. Tell our representative your needs to the last detail,—for every detail is important in making Albany Felts.

Every order for an Albany Felt is a "special" order. Every Albany Felt is "tailor-made" to fit specified conditions on the definite machine and position for which it is individually designed.

ALBANY FELTS

TAILOR-MADE BY ALBANY FELT COMPANY, ALBANY, NEW YORK

New York Trade Jottings

For the calendar year 1927 United States Envelope Company reports net income of $779,528 after charges which is equal to $28.55 a share on the common stock after preferred dividends. For 1926 the company earned $37.72 a share.

* * *

Fred Baker, the well known manufacturer of precision paper scales, desk micrometers and general calibrating instruments for the paper industry, of 30 Irving Place, New York, has taken H. C. Blye, well known consulting engineer of New York, into partnership.

* * *

Net profit of $9,554,397 is reported for the calendar year of 1927 by Timken Roller Bearing Company after depreciation, interest and federal taxes and this is equal to $7,95 a share on the no par stock. For the year 1926 net was $8,474,103 which was equal to $7.05 a share.

* * *

The committee on stock list of the New York Stock Exchange has admitted to trading the securities of the Abitibi Power and Paper Company, Ltd., viz., $11,492,700 par value of 6 per cent cumulative preferred stock and 732,038 shares of common stock without nominal or par value.

* * *

The Chase National Bank is prepared to deliver at its trust department United Wallpaper Factories, Inc., first mortgage twenty-year 6 per cent sinking fund gold bonds, due May 1, 1947, in definitive form, in exchange for the outstanding temporary bonds.

* * *

There was a good attendance of members at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry, held at the Canadian Club last Monday, to welcome the newly elected vice-president, Samuel C. Knode, of the Albemarle Paper Manufacturing Company.

* * *

Despite an increase of 7 per cent in the number of employees, as compared with 1926, there were 22 per cent less accidents causing lost time in the mills of the International Paper Company, New York, during 1927, showing the best record in the eleven years covered by the company's record. The International Paper Company maintains a department of safety.

* * *

Report of Corn Products Refining Company for 1927 shows net income of $11,905,289 after interest, depreciation, federal taxes, etc., equivalent after preferred dividends to $4.01 a share (par $25) earned on 2,530,000 shares of common stock. This compares with $11,933,881, or $4.02 a share, in 1926. Corn Products Refining Company has advanced prices 15 cents per 100 pounds on bulk products. This follows increases of 25 cents and 10 cents in the last month and brings level 50 cents above that of the end of 1927. Advances in cash corn prices are responsible for higher finished product quotations.

Mr. Backus Would Build Railway

There is an application before the Ontario Legislature, now in session, for a charter permitting the Kenora Paper Mills, Ltd., to build a railroad into Red Lake. The company is controlled by E. W. Buckus, the well-known Minneapolis millionaire paper man, who some months ago was reported to be looking over the ground with a possible view to building such a line. The application states that the railroad would be operated from a point near Kenora on the C. P. R., "by the most feasible route," crossing the C. P. R. and the English River, thus traversing Mr. Backus' English River pulp limits, and thence to the Red Lake mining area, Narrow Lake and Woman Lake in the District of Patricia.

Major Nash Guest of TAPPI

In a luncheon at the Chemists Club, New York City, the Technical Association greeted Major William Nash, chairman of the Technical Section of the Paper Makers Association of Great Britain and Ireland. Those present included Major Nash, W. G. MacNaughton, J. A. De Seu, T. L. Crossley, W. E. Byron Baker, G. D. Bearce, O. M. Porter, T. J. Keenan, B. T. McBain and R. G. Macdonald.

In the informal discussion of paper mill problems Major Nash, who is president of William Nash, Ltd., manufacturers of fine papers, outlined the developments in the British paper industry. The fact was brought out that American mills are neglecting an opportunity to obtain very desirable properties in paper by not including esparto pulp as a raw material in the manufacture of certain grades of paper. A unit of equipment that is used in Major Nash's mill and is not to be found in American mills is the Erkensator, a centrifuge used to remove grit and various dirt particles from pulp prior to delivering it to the stuff chest.

Among the comments made by Major Nash it is interesting to note that he mentioned that paper makers in Great Britain look continually to America to develop improved paper machinery and processes. The British Technical Section is patterning its organization and policy in accordance with TAPPI.

The Service to Members plan which has made the Technical Association so valuable to its members is to be adopted by his organization this spring. Another way in which the two organizations expect to cooperate is in the distribution of the abstracts and bibliography prepared by TAPPI. The British Technical Section expects to publish in pamphlet form this valuable index to the pulp and paper making literature.

Major Nash is returning to England March 2 on the *Berengaria*, having made a trip around the world and spent considerable time in New Zealand. Prior to sailing he is visiting several of the fine paper mills in the Holyoke district.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 29, 1928.—The Government Printing Office has received the following bids for 2,500,000 pounds of news print paper: International Paper Company, at 3.45 cents per pound; Lindemeyr & Harker, 3.36 cents; Beaver Pulp and Paper Company, 3.41 cents; R. P. Andrews Paper Company, 3.39 cents; Reese & Reese, 3.34 cents; Hudson Trading Company, 3.29 cents; Barton, Duer & Koch Paper Company, 3.4 cents; and Eastern States Paper Corporation, 3.34 cents.

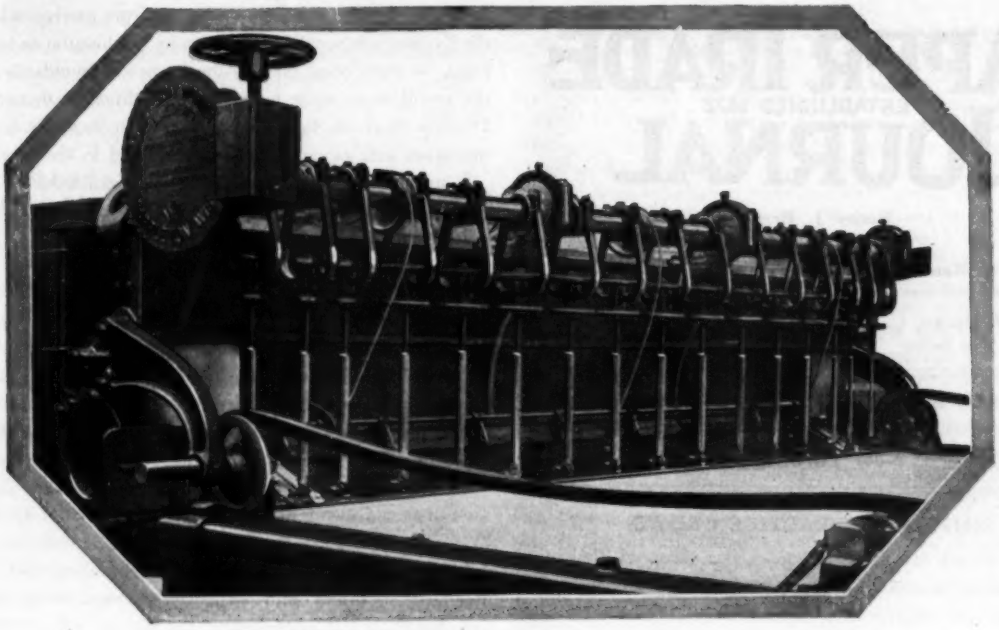
The following bids have also been received for 1,500 sheets of 22x28 mounting board or gray cardboard: Mathers-Lamm Paper Company, at $4.95 per C sheets; Whitaker Paper Company, $6.18; R. P. Andrews Paper Company, $6.15; and Barton, Duer & Koch Paper Company, $4.90.

The Printing Office will receive bids on March 2 for 432 pounds (2,000 sheets) of 24x36—216, brown cloth lined paper.

Want Lower Rates from Green Bay

Discriminatory rates on wrapping paper, paper toweling, toilet paper and paper napkins shipped from Green Bay, Wis., to Indianapolis, Wis., probably will be remedied by the Interstate Commerce Commission as the result of an investigation. An examiner of the commission has proposed that the wrapping paper rate should be reduced from 34 cents per hundred pounds to 29.5 cents, and that towels, napkins and toilet paper should be cut from 38 cents to 31.5 cents.

Action was taken when Indianapolis jobbers complained that the rates from Green Bay to St. Louis and Illinois points were less than those from Green Bay to Indianapolis. Issuance of an alternative order was prevented by the Green Bay Association of Commerce so that the St. Louis and Illinois rates would not be raised. A reduction in the other rate was requested instead. Millowners are confident the reduction will be granted.



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Vol. LXXXVI New York, March 1, 1928 No. 9

SIMPLIFIED PRACTICE GROWS

Continued growth of simplified practice as a means of eliminating waste in industry is evidenced by the completion during the calendar year 1927, of eighteen new simplified practice recommendations, thus bringing the total projects completed to eighty, according to a review of the past year's activities of the Commercial Standards Group, Bureau of Standards, by Ray M. Hudson, assistant director, in charge.

That simplification yields benefits sufficient to attract manufacturers, distributors and consumers alike, is demonstrated in the high degree of adherence shown by recent reviews of 15 of simplified practice recommendations already promulgated. The report shows that acceptors representing an average of 82.61 per cent of the total volume of the industry effected are following the simplified practice schedules. These recommendations are subject to annual reconsideration to determine the desirability of further eliminations, substitutions or reinstatements. This procedure keeps the simplified practice recommendations up-to-date and in line with the best current practice of the industry concerned.

Further evidence that simplification is proving of great value to manufacturers and purchasers is found in the increased number of associations accepting the completed recommendations. The list of associational endorsers grew from 686 to 898 during the year, the individual concerns, from 2,775 to 6,676. This means an increasing number of industrial purchasers are specifying simplified lines when buying, because they are finding that such items are usually more readily obtained; that their quality is better; and, in many instances, by reason of the savings wrought through simplification, prices are lower.

"Inasmuch as adherence to the adopted simplified practice recommendations has been most gratifying during 1927, with this increased percentage in acceptors, it is safe to assume that the percentage in adherence during 1928 will be much closer to 100 per cent. It must be remembered that savings from adoption of the simplified lines are obtained by the small manufacturers as well as the large, and also by the public. A survey of the benefits to acceptors from simplified practice recommendations shows many cases of definite money savings, by the small manufacturers as well as the large," states Mr. Hudson.

"During the year a total of two hundred and eight business and industrial leaders, including thirty-one from foreign nations, visited the Division of Simplified Practice in Washington to learn at first-hand, the work being done by the Bureau of Standards to eliminate the avoidable waste in industry. In addition to these visitors, the Division received, by mail, many foreign inquiries for data, and numerous articles on the subject appeared in the foreign press.

"During 1927 approximately 39 industries conducted preliminary conferences, looking toward the adoption of simplified practice recommendations; 18 general conferences were held; and 24 new proposals for consideration were received.

"The Standing Committees of several industries that had already adopted Simplified Practice Recommendations for their respective commodities, held their regular annual conferences. Among the items to be reconsidered were tissue paper; box board thicknesses and bank checks, notes, drafts, and similar instruments.

"During the past year the simplification work reached the point where more effectively to serve industry there was created within the Bureau of Standards, a 'Commercial Standards Group' under an assistant director of the Bureau, of which group the Division of Simplified Practice is now a part. The activities of this group will include the coordination of simplification and commercial standards programs with particular reference to the needs of an industry.

"In addition, the correlation of the work of the Federal Specifications Board with commercial practice, and liaison duties with other branches of the Department of Commerce, and with other Government departments in questions relating to commercial standards, will be included in this group. In formulating plans and policies for the guidance of the activities of the Commercial Standards Group, the assistant director is aided by a planning committee, which meets quarterly in the Department of Commerce.

"The new organization provides for a certification plan by which manufacturers certify those of their products which conform to nationally recognized standards and specifications. While this is optional with the manufacturer, it is expected that it will be generally adopted during the coming year. Already 684 well known manufacturers have stated their willingness to furnish products made in accord with 75 of the U. S. Master Specifications. A total of 42,075 copies of these lists of manufacturers have been distributed for use by purchasing agents and others who desire to buy goods made to Federal Specifications.

"The value of the exports of the United States during the past three years averaged about four billions, seven hundred millions of dollars of which 43 per cent went to English-speaking countries; 17 per cent to Teutonic and Slavic speaking; and 30 per cent to Spanish, French, Italian and Portuguese speaking countries. This brings out the importance of translating certain of our standards into these foreign languages, wherever the commodity has a foreign market. Several foreign countries, whose volume of exports reach important figures, have distributed translations of their national standaards abroad. The British have done some notable work along this line, expending, according to a statement of an official of the British Engineering Standards Association, more than 20,000 pounds Sterling for publications in Spanish, French, Italian and Portuguese languages and for the strategic spreading of these in overseas countries.

"Obviously, the sponsorship for translating, publishing and distributing of American standards can be done more efficiently by

one central agency than by a number of individual agencies. A group of industries and organizations have indicated that the work could be effectively carried out under the auspices of the Department of Commerce, which now maintains a field staff for promotion of commerce abroad."

DEVELOPED WATER POWER IN U. S.

The developed water power in the United States on January 1, 1928, was 12,296,000 horsepower, showing an increase of 575,000 horsepower, or approximately 5 per cent, during 1927; and the total amount of potential water power available 90 per cent of the time is 38,110,000 horsepower and that available 50 per cent of the time is 59,166,000 horsepower, according to an announcement by the Department of the Interior, through the Geological Survey. The figures for potential water power are not directly comparable with the figures for developed water power, because the figures for developed power are given in terms of the capacity of the installed water wheels, which may be several times the potential power available 90 per cent of the time. Estimates based on studies of the capacity of water wheels installed at fully developed water-power sites indicate that about 15 per cent of the potential water power of the United States is developed at the present time. If it were feasible to develop all the water-power resources of the United States, the total capacity of water wheels installed at all water-power plants would amount to about 85,000,000 horsepower.

All of the increase in developed water power in 1927 was in the plants of public-utility power companies, the capacity of water wheels in manufacturing plants showing a small decrease during the year. California still ranks first in developed water power, with a total of 1,993,000 horsepower of water wheels in water-power plants. New York, with 1,779,000 horsepower, is second, and Washington, with 707,000 horsepower, is third. The rest of the ten leading water-power States are all east of the Mississippi River.

The report from which these figures are taken contains tables showing the relative importance of the divisions of the United States in developed water power, the rank of the ten leading water-power States for several years, and the total amount of developed water power in each State on January 1, 1928.

The estimate of potential water power in the United States has been revised to include the results of recent studies and surveys, particularly in the upper Columbia River basin and the Tennessee River basis. Washington, with 11,200,000 horsepower available 50 per cent of the time, leads all the States in water-power resources by a wide margin. It is followed by California with 6,700,000 horsepower, Oregon with 5,900,000 horsepower, and New York with 5,000,000 horsepower, these figures representing power available 50 per cent of the time at an efficiency of 70 per cent. Most of the undeveloped power in New York is on the Niagara and St. Lawrence rivers.

Swedish News Print Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., February 29, 1928.—Production of news print by the mills of the Swedish Paper Association during the month of December totaled 15,185 metric tons bringing the total for the year 1927 up to approximately 216,400 tons. According to preliminary official foreign trade statistics, exports amounted to 173,833 tons and imports to 3,808 tons. The United States has become the largest individual purchaser of Swedish news print, taking during the past year 60,939 tons.

To Fight Lower Tariff on Book Paper

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., February 27, 1928.—Book paper manufacturers here are perturbed over the announcement made in the Dominion budget of a lowering of the tariff on paper used by magazines publishers in Canada, and a deputation has been appointed by the Canadian Pulp and Paper Association to go to Ottawa and discuss the proposed change with the authorities so that the interests of Canadian manufacturers may be protected, or something obtained from other countries as a quid pro quo.

The proposal of the Finance Minister is to allow a drawback of 80 per cent on all supercalendered and coated papers used by Canadian magazines and periodicals that are bound or stitched and produced wholly in Canada. This concession has been made as a result of a persistent campaign by the magazine publishers, who have maintained that they are at a great disadvantage in their own market as compared with publishers of American magazines largely distributed in the Dominion. They have not only asked for a lowering of the duty on paper, but also for the taxing of American magazines, though the difficulties in connection with the latter are such that the Government has hesitated to do anything in this line, beyond the present stipulation that magazines to enter this market freely must contain a certain proportion of reading matter as compared with the advertising they carry.

The mills at present supplying Canadian magazine publishers with the bulk of their requirements are the Howard Smith Paper Mills and the Provincial Paper Mills, but it is stated that not more than 10 per cent of the output of these mills will be affected. It is claimed by the paper men that they cannot meet the American price for book paper with the drawback in effect, though the publishers hold that there will be such an increase in the amount of paper used by Canadian manufacturers that the Canadian mills will be able to reduce their costs. The paper men do not concede this, pointing out that the Canadian book paper manufacturers have only a market for 32,000 tons of paper per annum, as compared with the United States manufacturers who produce some 1,500,000 tons annually.

As a quid pro quo for giving American manufacturers a better entry into Canada for magazine paper, it is held by some of the paper men that the Government might have put an embargo on the export of pulpwood cut from private lands, as well as from Crown lands, or an export tax on pulpwood, with the provision that this embargo or tax would be lifted if the United States would permit Canadian fine paper to enter the States. The Government, however, sees in these proposals the possibilities of complications which might go far beyond what they intended, and they are not looking for complications, having enough on their hands already.

Want Saturday Night Off at Holyoke

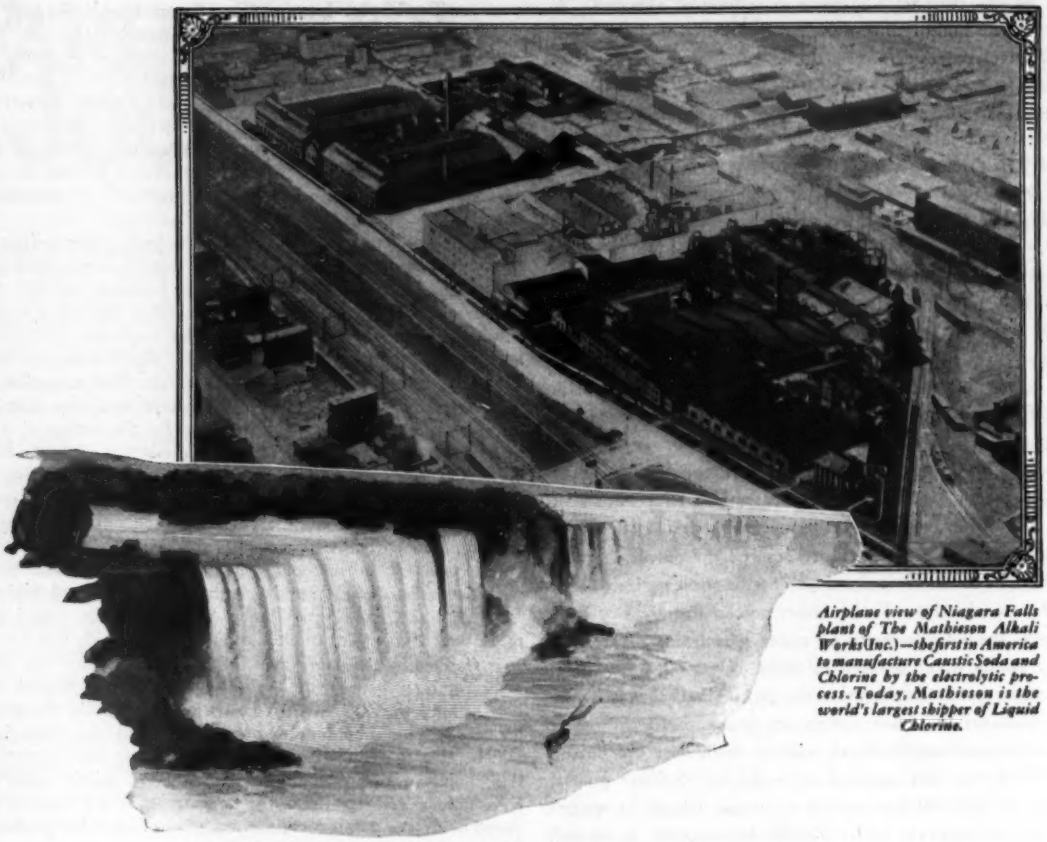
[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., February 28, 1928.—Eagle Lodge of Papermakers has deferred action for the present on the proposal requesting the manufacturers to grant Saturday night off for the tourworkers. The plan has been held in abeyance to see how much support could be obtained from other unions. A smoker is to be held next Sunday when representatives of the Central Labor Union, Steam Engineers' Union and Stationary Firemen's Union will be invited to be present and give their views. The local lodge has received approval from the headquarters of the International Brotherhood for the move.

Beveridge Paper Co. Puts Out New Line

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., February 28, 1928.—The Beveridge Paper Company at Indianapolis, is putting out a new line, Saracen Leatherette, in one size, 23x29—125, in seven colors, buff, blue, brown, gray, green, maroon and black. Saracen leatherette is particularly adapted for calendars and "out of the ordinary" advertising pieces. It may also be used for an inexpensive cover. All the colors are embossed and "brushed" with metallic gold, silver or copper.



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AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Edited by
RONALD G. MACDONALD, Secretary

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Paper Making Industry

Clarence J. West, Chairman

Paper Specialties

Waterproofed Paper and Process of Making Same. L. Kirschbraun. U. S. pat. 1,621,791, Mar. 22, 1927. A waterproofing substance such as asphalt is fluxed with oleic acid or other suitable fatty acid and dispersed in an aqueous medium by the use of clay or other suitable emulsifying agent. The emulsion is mixed with the stock and a reagent such as lime is added to produce an insoluble soap, and the material is then formed into sheets on a paper machine.—A. P.-C.

Process and Mechanism for Making Crinkled Paper. N. M. Goodlet, assignor to Arkell Safety Bag Co. U. S. pat. 1,626,527, Apr. 26, 1927. Pressure is applied against the paper immediately in advance of the crinkling doctor so as to limit its stripping action.—A. P.-C.

Process of Crinkling and Reinforcing Paper. W. W. Rowe, assignor to The Paper Service Co. U. S. pat. 1,628,515, May 10, 1927. Dry paper is creped without the use of moisture or adhesive requiring drying by applying a heat-plastic bituminous substance to the paper on the creping roll so as to bind the paper to the latter and then removing the paper by means of creping knife or doctor so as to crepe it.—A. P.-C.

Paper for Preventing Tarnishing of Polished Metals. F. H. Osborne, assignor to C. H. Dexter & Sons, Inc. U. S. pat. 1,628,610, May 10, 1927. The paper is treated with zinc acetate.—A. P.-C.

Indurated Cellulose and Process of Making Same. H. H. Clark, assignor to Clark Fibre Prod. Corp. U. S. pat. 1,618,572, Feb. 22, 1927. A body of cellulose is indurated by saturating it with bath formed by mixing 100 parts by weight of 72 degree Baumé zinc chloride solution and 3 to 10 parts by weight of phosphorus oxychloride, compacting the saturated mass, and gradually removing the liquid therefrom by successive washings in progressively weaker baths of the same solution until the residual amount of chemicals in the mass is only about 0.1 per cent. The resultant product is semiplastic under mechanical stress, somewhat translucent, substantially uninjured by severe flexure, capable of assuming a plastic set under the action of heat, and has an elastic limit of about 9,000 lb. per sq. in. under tension and a tensile strength of about 12,000 pounds with an elongation of about 5 per cent before fracture. It is capable of great distortion under lateral pressure and capable of being swaged into modified shapes without separating the initial plies. It has a specific gravity in excess of 1.25.—A. P.-C.

Method of Making Moulded Paper Articles. W. J. Gaven. U. S. pat. 1,620,538, Mar. 8, 1927. A layer of paper is coated with a powdered composition possessing ornamental and adhesive qualities and heated to unite the coating with the papers. Several such coated layers are then superposed and subjected simultaneously to heat and pressure to mold them to the configuration of the article desired.—A. P.-C.

Atmospheric Conditions and Paper in Printing Plants. Chief of Tests, U. S. Government Printing Office. Paper Trade J. 85, No. 1, 54-55 (July 7, 1927). Outline of the work carried out along these lines during 1926 at the U. S. Government Printing Office. It has been found that to secure satisfactory working results with paper, it is essential that low relative humidity conditions be overcome by humidification and that uniform relative humidity conditions be maintained in the printing plant. If paper manufacturers should deliver paper of a moisture content corresponding to the atmospheric conditions of the printing plant, complaints of static electricity, curl, wavy edges, changing dimensions of the paper and similar troubles would be overcome. It is essential for certain kinds of work requiring exact register that the paper be thoroughly seasoned in the pressroom by hanging the sheets in racks. Installation for increasing the humidity of the pressroom showed improvement in operating conditions, and the same holds in the case of folding and ruling paper. For the bindery, maintenance of a relative humidity of 40 to 50 per cent will be most satisfactory during the months of year when low relative humidity indoors usually occurs; and during the summer months a relative humidity of 50 to 60 per cent would probably be the most economical to maintain without dehumidifying apparatus. An investigation is under way to determine the normal moisture content of all kinds of paper as delivered to the office, and also the moisture content of paper after exposure to definite relative humidity conditions.—A. P.-C.

Power

Heat in the Pulp Industry. A. St. Klein. Papierfabr. 25, 125-130 (Feb. 27, 1927); Wochbl. Papierfabr. 58, 190-196 (Feb. 19, 1927). An address covering the use of heat (1) as a source of power, (2) in the digestion process, (3) for drying pulp, and (4) for the recovery of chemicals. The economics of the subject are

TAPPI SECTION, PAGE 136

emphasized with particular reference to sulphite and sulphate pulp mills.—J. L. P.

Electricity in the Paper Industry. K. Hock. Papierfabr. 25, 253-260 (Apr. 24); 272-278 (May 1, 1927). The application of electricity as a source of power in the paper industry is discussed. In particular, the use of electric drives for wood grinders, beaters, calenders, cutters, paper machines, etc., is described.—J. L. P.

Universal Hydraulic Variable Speed Gear and its Applications to Paper Mill Drives. D. R. Francis. Paper Mill 50, No. 22, 32, 34, 70-74 (May 28, 1927); Paper Trade J. 84, No. 22, 71-76 (June 2, 1927). A description of the machine and its operation, and of its application to various paper mill drives.—A. P.-C.

Welding Pipe Lines in Buildings. H. E. Wetzell. Pulp and Paper 25, 772-774 (June 16, 1927). A discussion of the advantages of welding for pipe work and of the procedure used in carrying it out.—A. P.-C.

Reducing the Stack Loss. M. F. Corin. Paper Ind. 9, 145-148 (June, 1927); Paper Trade J. 84, No. 22, 90 (June 2, 1927). A discussion of the importance of stack losses and of the methods of reducing them, with a description of various instruments (particularly gas analyzers and CO_2 recorders) used in reducing them to a minimum.—A. P.-C.

Segregation and Corrosion of Boiler Tubes. G. R. Woodwine and A. L. Roberts. Pulp and Paper 25, 769, 770 (June 16, 1927). Boiler tubes are usually made from non-piping steel, and in most instances show segregation. Billets of such steel often split in piercing. Tubes showing segregation corroded severely during one year's service, while homogeneous tubes corroded very little under the same conditions. Tubes of specially made steel free from segregation have shown better corrosion resistance in practice than ordinary tubes.—A. P.-C.

Powdered Fuel Combustion and Furnace Design. T. A. McGee. Paper Mill 50, No. 22, 18, 83-84 (May 28, 1927). Paper Trade J. 84, No. 22, 81-82 (June 2, 1927). A discussion of the various factors involved in pulverized coal combustion and of furnace design as affected by these factors.—A. P.-C.

Pulverized Fuel. The Lopulco System. Anon. World's Paper Trade Rev. 87, 1380-1384 (Apr. 29, 1927). A description of the system.—A. P.-C.

Carbon Dioxide and Spontaneous Combustion of Coal. Homer G. Turner and Eric Sinkinson. Pulp and Paper 25, 681-682 (May 26, 1927). Experiments which are briefly described indicate that the adsorption of carbon dioxide by coal is an important factor in the production of the initial temperatures necessary for its spontaneous combustion.—A. P.-C.

Recent Developments in Burning Powdered Coal Under Steam Boilers. Henry Kreisinger. Paper Trade J. 84, No. 26, 40-44 (June 30, 1927). This paper deals with the development of water or steam-cooled furnaces for burning powdered coal in steam generating units, and points out that these water- and steam-cooled furnaces make it possible to take full advantage of turbulent mixing in the combustion space, which is necessary for high rates of combustion.—A. P.-C.

Reducing Boiler Plant Costs in Paper Mills. Louis C. Whiton, Jr. Paper Trade J. 84, No. 2, 43-46 (July 14, 1927). A discussion of the advantages of the Prat-Daniel stream-line stack for boilers.—A. P.-C.

Heat Losses Due to Scalding and Fouling of Steam Boilers. Hellemans. Chimie et Industrie, Special No., 301-308 (Sept., 1926); Pulp and Paper 25, 893-898 (July 14, 1927). It is shown by theoretical calculations and by the results of comparative boiler tests that the reduction in fuel consumption generally claimed by manufacturers of water-softening equipment or of boiler compounds is greatly exaggerated. Removal of the soot and ashes from the tubes increased the boiler efficiency about 3 per cent, while removal of the scale (varying from 0.75 to 12 mm. in different parts of the boilers) had no measurable effect on the efficiency.—A. P.-C.

Treatment of Water to Prevent Corrosion. John R. Baylis. Ind. Eng. Chem. 19, 777-781 (July, 1927). No treatment of water will prevent corrosion of iron where a fresh metal is exposed. Water at the solubility equilibrium of calcium carbonate and containing over 25 parts per million of calcium carbonate will precipitate calcite where corrosion takes place and aids in forming an impervious protective coating. The most durable practical coating, with the possible exception of cement lining, does not last many years in corrosive water, but any coating that lasts till a protective film is built up from the constituents of the water will give good protection when the water is more alkaline than the saturation equilibrium of calcium carbonate. To waters with less than 25 parts per million of calcium carbonate, lime should be added to produce the desired alkalinity. To others either lime or soda ash may be added. All evidence indicates that iron pipe, whether galvanized, painted with coal-tar pitch, or cement-lined, is durable only when the water is saturated with calcium carbonate or is more alkaline.—A. P.-C.

Methods of Water Purification. Joseph H. Hewetson. Paper Mill 50, No. 28, 26, 28, 40-42 (July 9, 1927). Description and discussion of the various water purification processes, bringing out the merits of zeolite softening.—A. P.-C.

Process for Removing Boiler Scale from Boilers, Etc. With the Aid of Dilute Acid. Siemens-Schuckertwerke. Ger. pat. 440,005. Papierfabr. 25, 124 (Feb. 20, 1927). During the action of the acid on the boiler scale, an electric current is allowed to pass with the boiler as the cathode.—J. L. P.

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Control of Beater Furnish to Eliminate Foaming on the Paper Machines

By G. K. Spence[1]

Foaming on the paper machine may come from a number of different sources; but if the stocks furnished to the beater are properly controlled this trouble can be greatly reduced, and in many cases almost entirely eliminated.

Following are some of the sources of foam on the machine:

(a) Alkalinity of the various stocks may be too high when delivered to the beater.

(b) Sulphite and soda pulp may not be sufficiently washed after bleaching to remove the colloidal stock present.

(c) Old paper stock may not be washed thoroughly enough after deinking and defibering to completely remove glue or other colloidal materials which may be present.

(d) Rosin size may not be properly precipitated.

(e) Use of leaky stock circulating pump.

(f) Too much air may be entrained in stock passing down from the head box.

(a) Alkalinity of Stock

Alkalinity in the soda and sulphite pulp usually comes from the bleach used and is present in the pulp as calcium carbonate. It sometimes hangs tenaciosuly to the stock and is difficult to remove by washing with water. In this case it is advisable to give the pulp a slight acid treatment, which neutralizes the alkalinity and renders the calcium salt soluble and can be readily removed by washing with water.

Alkalinity in old paper stock is either calcium carbonate, sodium carbonate, or both. The calcium carbonate comes from coated papers treated or from the bleach used in bringing the stock up to the proper color. Sodium carbonate when present is due to not washing the deinked stock sufficiently to remove the sodium carbonate used in the soakers.

When the alkalinity of the sulphite and soda pulp and old paper stock is too high when delivered to the beater, there is a tendency to precipitate the rosin in the size as calcium resinate, which is not a good sizing agent. In addition, the alum has a sluggish action on the lime salts, and the result is the evolution of carbonic acid even when the stock is sent to the paper machine, causing foaming on the machine.

Trouble from this source can be avoided by controlling the alkalinity in the soda, sulphite, and old paper stocks before delivering them to the beater. This can be accomplished by giving each stock a slight acid treatment after bleaching, maintaining a pH of 5.5 in the beater before adding size and alum.

(b) Colloidal Stock

During the process of bleaching soda and sulphite pulp there is more or less oxy-cellulose formed, which is soluble colloidal stock. If the pulp is properly washed this colloidal stock will be removed from the fibre and washed away; but if the pulp is not properly washed, the colloidal stock will produce more foam trouble on the paper machine than any other of the above mentioned causes. Colloidal stock when agitated will foam badly, and when there is much present in the furnish it is impossible to prevent foaming on the machine.

There has been a tendency of late, to have as nearly as possible, a closed system in the white stock department of the pulp mill, in order to reduce the fibre loss, and at the same time improve the condition of the stream into which it is discharged. The water from the white stock thickener is passed through savealls, some of which are not very efficient, and on account of the presence of considerable stock in the water from the saveall, this water is used again on the screens and in other departments of the pulp mill. In this locked up system the colloidal stock builds up to such an extent that when the soda or sulphite goes to the paper machine, there will be an excessive amount of foaming on the screens and machine. The result will be poor formation, and curtailed production, due to the increased number of breaks. There will also be an excessive amount of foaming in the paper machine saveall; resulting in poor efficiency.

It is not advisable to save the water from the white stock washers of either the soda or sulphite pulp mill. This water should be passed through an efficient saveall and thence to the sewer. Very efficient results are obtained by use of the batch type filter, the stock from the water forming a mat through which the water passes and is delivered to the sewer perfectly free from stock. Such installations are showing an efficiency of 99.5 per cent; that is 99.5 per cent of the stock in the water is removed by the filter and returned to the mill.

It is advisable to control the colloidal stock content of the pulp delivered to the beater, which can be done by determining the calcium chloride content.

When pulp is bleached there is always a certain amount of calcium chloride formed which is perfectly soluble and can be readily removed by washing. The colloidal stock is also soluble and can be removed by washing, so that when the bleached pulp is not properly washed there will be present both calcium chloride and colloidal stock. The calcium chloride present is, therefore, a measure of the colloidal stock, that is, the colloidal stock is in direct proportion to the calcium chloride content. By determining the amount of calcium chloride present one can determine how completely the colloidal stock, has been washed from the pulp. When the maximum allowance of calcium chloride is fixed, washing can be controlled to keep within the allowable limit. If this control system is followed, there will be very little foaming trouble due to presence of colloidal stock. For example, a certain pulp mill was delivering bleached slush stock to the beaters containing 4 grains calcium chloride per gallon and there was very little foam trouble on the machine; they later changed to the locked up system and the chlorides built up until the slush stock going to the beaters contained 55 grains of calcium chloride per gallon. When this point was reached the foam was so bad that it was next to impossible to keep a sheet of paper on the machine. The pulp mill later reverted to the old system of allowing the wash water to pass to the sewer, which resulted in the chlorides being reduced to about 4 grains in the slush stock and the foam trouble cleared up. The calcium chloride was not causing the form, but was simply a measure of the amount of colloidal stock present.

(c) Old Paper Stock

When de-inking old paper stock there are times when some of the magazines contain quite a large percentage of glue and other colloidal material used in sizing and coating. It is necessary to wash these materials thoroughly from the stock before sending it to the beaters. This washing can be controlled to some extent by shaking some of the water from the last

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washer in a test tube, noting its foaming tendency, and if bad the stock should be more thoroughly washed.

(d) Raw Size

If the pH of the beater furnish is not properly controlled there is a possibility of the old paper stock not having the sodium carbonate completely washed out, and the alkalinity from this source being so high that it requires most of the alum added to neutralize it. This will result in not having sufficient alum present to precipitate the rosin; and raw size will pass to the paper machine in the stock furnished. A small amount of raw size will foam badly and cause considerable trouble from this source. (This will rarely, if ever happen; but is given here as a possibility).

(e) Stock Circulating Pump

If not given the proper attention, the circulating pump will leak badly around the shaft, and allow air to be sucked in and mix with the stock. When the air works out of the stock again it will have a tendency to cause foam. This can be remedied by examining the pump from time to time and keeping it well packed, so as to avoid such leaks.

(f) Head Box

It is the usual custom to design the head box for the paper machine without any thought of eliminating the tendency of the stock to foam. When the excess stock from the head box returns to the circulating tank it usually drops down through a pipe forming a funnel of stock which sucks a large volume of air down with it and this air is mixed with the stock. The same is true of the stock flowing down from the head box to the flow box of the paper machine. This air entrained in the stock must get out again and in doing so assists in causing foam. This trouble could be remedied by having the head box so arranged that the opening in the outlet pipe is sealed at all times to prevent entraining air with the stock when it returns to the circulating tank or passes to the flow box.

The "Oil Penetration" Test for Roofing Felt

Philip W. Codwise[1]

The generally known laboratory methods of testing the qualities of roofing felt with regard to its saturation characteristics, with asphalt and the like upon the roofing machine, leave much to be desired.

The "kerosene test" is probably the best known and most used method and it is satisfactory in so far as it goes; the kerosene test, however, merely shows the maximum saturating capacity of a felt and, of course, does not always tell the rate at which the felt will saturate in practical operation. It is entirely possible for a felt to give a satisfactory kerosene test but to have a penetration test so slow that it is unsuitable for practical use.

More than four years ago, after a survey of known methods, this laboratory devised what we designate as the "oil penetration test" for roofing felt and have used it continuously since that time both at our felt mill for control work, and elsewhere as the occasion arose, in order to determine the saturating rate of dry felt. In our opinion this test has certain advantages over the so called "xylol test" which has been proposed for a similar purpose. Among these may be mentioned its greater ease and rapidity of manipulation and the fact that its results indicate in general the relative speeds at which the felt may be run upon the saturating machine. In the xylol test the absorption is through the edge and there apparently is a tendency for it to exaggerate certain characteristics which are not found either in the oil penetration test or in actual asphalt saturation.

Purpose of the Test

The object of this test method is to obtain a gage of the rate at which dry felt, or roofing felt, may be expected to saturate under operating conditions upon the saturating mechine. From a manufacturing standpoint the saturating rate is of first importance as it is a controlling factor in machine speeds obtainable upon the saturator and in the resulting percentage of saturation obtained in the roofing. The present test, considered in conjunction with the kerosene test, appears to give the information needed with regard to these saturating qualities.

Apparatus Required

No elaborate apparatus is required to carry out this test. A glass pipette viscosimeter and an accurate thermometer are the chief requirements in addition to the oil, receptacles for holding the oil, and a stop watch. A pipette viscosimeter is used to check the viscosity of the oil from time to time and this viscosimeter is easily made from an ordinary 50 cc. glass pipette. An accurate thermometer is needed to check up the temperature of the oil since its viscosity changes appreciably with a few degrees difference in temperature.

Description of the Oil

A clear, light bodied, petroleum oil, of carefully controlled viscosity, is used for the testing; for control work it is often advisable to have several mixtures of oil at hand which may be used according to variations in room temperature. The oil consists of clear paraffin oil to which a certain amount of clear light engine oil may be added to adjust the viscosity; the exact proportions vary according to the temperature at which the mixture is used. The correct oil should have a Saybolt universal viscosity of 253 seconds at the temperature at which it is used. This has been determined by tests upon the correct oil mixture to be used at 72 degrees F.; in order to further define the proper oil for use at the particular temperature of 72 degrees F., we find that this oil when tested at a temperature of 100 degrees F. has a Saybolt universal viscosity of 125 seconds. We find that with the usual grade of paraffin oil it is necessary to add only a small proportion of engine oil in order to get the proper viscosity for use at ordinary room temperatures.

Description of the Test

The test consists in floating a small sample of dry felt upon an oil bath of definitely controlled viscosity and noting the time in seconds required for the oil to strike through by capillary attraction and darken practically the entire uppermost surface. The test is carried out from both sides of the sheet and the results are recorded both from the felt and from the wire side.

Procedure:—The viscosity of the oil is determined with the control pipette and if not correct is adjusted either by changing the temperature or by changing the propertions of the oil mixture. When the correct oil viscosity has been obtained a sample 2 x 2 inches is gently placed upon its surface and the stop watch is started simultaneously. The sample is then watched while the oil is penetrating into it. When the sample surface is judged to have become darkened to 90 per cent of its area the elapsed time in seconds is noted and recorded. A sample is first tested with the felt side up and then an adjacent sample is tested with the wire side uppermost, or the two samples may be tested simultaneously. The number of seconds required for the oil to penetrate from each side of the

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sheet is called the "oil penetration test" for the respective side of the sample.

Discussion of Results

In order to demonstrate the working of the oil penetration test with some actual examples we have prepared the following table showing the penetration test for the four different conditions as noted below and for three different classes of felt as grouped by weight, namely the 25 pound felt, the fifty pound felt and the 75 pound (per 480 square feet) felt. It is believed that these are representative of the usual range of thicknesses of felts and, of course, the thickness has a decided bearing upon the rate of saturation. In each class we have shown results upon two types of felt. In connection with the penetration figures we have tabulated the moisture content of the air dry sample and have also given the result of a comparative laboratory saturation test with asphalt. The laboratory saturation tests were all done with the same saturating asphalt at a uniform average temperature of 415 degrees F., and with a uniform immersion time of 40 seconds. As noted in the table these saturation tests were done upon bone dry samples.

	Oil penetration				Moisture in air dry sample Per cent	Asphalt saturation, bone dry sample Per cent
	Bone dry		Air dry			
	Felt side up Seconds	Wire side up Seconds	Felt side up Seconds	Wire side up Seconds		
25 pound felt						
Felt A	6	8	7	8	5.0	165
Felt B	10	12	12	13	5.1	141
50 pound felt						
Felt A	10	13	12	13½	6.0	206
Felt B	13	16	14	15	4.4	166
75 pound felt						
Felt A	18½	26	24	31	5.2	175
Felt B	31	35	32	43	5.8	150*

* Note.—This sample not entirely saturated in 40 seconds.

When the test is carried out as described the results upon satisfactory felt may range from as low as 2 seconds up to about 35 seconds according to the weight and character of the product. Felt is occasionally found that will run up to 50 and even to 60 seconds in this test but such felt is almost sure to be slow saturating and unsatisfactory in practical use.

There is a certain difference in the test from the two sides of the sheet which may at times amount to 25 per cent or more. It is found that the test is usually the quickest with the felt side uppermost and we are in the habit of placing most weight upon the test from the quick side.

It will be noted from the foregoing table that there is a certain difference in the penetration test result according to the moisture content of the sheet, as might naturally be expected. It is therefore advisable in reporting oil penetration results to state the condition, whether air dry or bone dry, and if possible to give the moisture content. In connection with all tests upon bone dry samples given in this article it may be stated that the samples were cooled in a desiccator before testing. In case the test is being used for control purposes, following the felt machine, the moisture content will be an intermediate figure and will probably be determined in connection with the regular inspection work.

Notes on the Test

The pipette viscosimeter is easily made by drawing down the narrow lower portion of a 50 cc. glass pipette to a rounded hole of the proper diameter in a gas flame. These pipettes cannot, however, be expected to read exactly alike and each should be independently standardized. In this connection it may be stated that we have found that an instrument which delivers water in 26 seconds, by taking the end point reading at the upper joint of the lower restricted portion, delivers the proper oil in very close to 60 seconds.

In laboratory control work it is far more convenient to have several pans of oil ready mixed, of slightly different compositions, and in case one is not exactly correct another may be used which is suitable according to its temperature and viscosity. It is often found convenient to change from one oil to another as the room and oil temperatures vary during the day. A desirable refinement would be to have a temperature control apparatus to maintain a uniform temperature but such control would need be of very close adjustment in order to operate without continual attention in this particular case.

It is considered that the sheet is saturated with oil when the end point reading is taken. We have adopted 90 per cent of the area covered as the end point due to the fact that the felt very often contains particles of unbeaten stock which tend to resist the penetration of the oil and to produce a light spot upon the surface; therefore, in order to get representative figures upon the real penetrating quality of the sheet it is found advisable to ignore these spots and take the end point as here noted.

Report of Committee on Roofing Felt

By P. W. Codwise, Chairman [1]

The Roofing Felt Committee being a new one the present year has not any completed investigations to report upon. However, its activities are now well under way and progress is being made in its initial investigations.

A survey of testing methods for roofing felt is now under way and should be completed by the time of the next annual meeting This investigation has been undertaken primarily to establish methods of determining the saturating characteristics of felt but will also include an investigation of the most suitable methods for testing the other physical constants. By adding to the results of this survey the findings of the committee of the A. S. T. M. upon the fiber analysis of roofing felt it is hoped that we will be in a position to prepare a set of test methods which will cover a complete specification for this product.

The literature upon the subject of roofing felt is comparatively meager and the only contributions which have come to our notice during the past year are preliminary investigations of the Dot Count Method of Fibre Analysis and an article by the writer upon "The Freeness Test in Roofing Felt Manufacture." During the previous year there was published in the technical section of the PAPER TRADE JOURNAL, an article by one of your committee members, Mr. K. B. Howell, entitled "Observations on Operating Economies of the Roofing Felt Industry" which gives an interesting survey of the industry. Prior to these there have appeared occasional articles having a certain bearing upon the subject but the contributions have been of a most general nature. It is one of the hopes of the committee to see to it that the roofing felt industry receives the recognition in the technical literature that it deserves.

During the year a preliminary investigation has been made of possible methods of disintegrating rag stock. These are different to the generally accepted ones of use of the rag cutter, the Holland type of beater and the jordan. The investigation to date has not been highly encouraging as preliminary trials made by a large manufacturer of swing hammer disintegrators did not show either high capacity or efficient reduction; an investigation of this subject also shows that any violent mechanical disintegration process is at a disadvantage due to the presence of appreciable quantities of metal and foreign matter in rags of the roofing grade. This matter is still under consideration and it is possible that more favorable aspects of the situation may develop as the investigation proceeds.

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Some Tests on A Jordan Using Kraft Pulp

By J. S. Little[1]

As a part of some development work, tests were made on the treatment of kraft stock with a Noble and Wood baby jordan, the results of which may be of general interest. Although the rated capacity of the baby jordan is much higher, the use to which we proposed putting the jordan limited the rate of treatment to a pound of pulp (bone dry basis) per minute. Under this condition we were interested in determining the effect of the consistency used on the physical properties of the treated pulp. Also we wished to determine to what extent the physical properties of the pulp could be altered by one passage through the jordan.

The rate of flow of the stock through the jordan was controlled by varying the size of the opening in the outlet of the jordan. A gate valve proved unsatisfactory for this purpose because of the small opening required at the pressure used. Consequently the scheme of using plugs with various sized holes drilled through them was used. A centrifugal pump circulated the pulp suspension. The stuff tanks did not have adequate agitation and in consequence the consistency of the pulp varied somewhat during the course of a test.

The kraft pulp used for the tests was lap stock containing about 65 per cent moisture which was merely broken up in a 50 pound beater before use.

The treated pulp was tested for slowness, shrinkage, and bursting, tearing and tensile strengths as described following.

Slowness

The slowness value was arrived at by an apparatus different in construction from that ordinarily used. This consists of a vertical brass tube 4 feet long and 1½ inches in diameter. A ⅜ inch "U" pipe is fastened to the bottom of the pipe by a hinge clamp in such a way that a piece of fourdrinier screen is held between the two pipes. The "U" pipe is filled with water bringing the level of the water up to the bottom of the screen and stoppered before filling the large pipe. A glass gage is connected at about 3 inches from the top and bottom of the large tube which shows the level of the stock in the big tube. In conducting the test, the tube is filled with 0.085 per cent stock at 25 degrees C. The stopper is immediately pulled and the time required for the stock level to drop two feet from the top is determined by a stop watch. This time expressed in seconds is recorded as the "slowness" of the pulp.

Sheet Making and Shrinkage

Six test sheets were made for each pulp test with a Williams sheet machine, the sheet weight corresponding to a ream of 480 sheets 24 by 36 inches, weighing 75 pounds (bone dry weight), i.e., a 4.5 gram sheet 7.5 by 7.5 inches. The sheets were pressed at 200 pounds per square inch for one minute. Then they were removed from the felts, marked in two directions for the shrinkage test, and dried for about two hours at 103 degrees C. The distance between the marks was then measured for shrinkage.

Testing

Lacking a constant humidity room, the test sheets were allowed to pick up 6 per cent moisture before the strength tests were made. Each sheet was cut with three strips 2½ inches wide for testing.

Tearing Strength

The Elmendorf tester was used for determining the tearing strength. The center strip from each of the six sheets was cut into four pieces 1⅝ by 2½ inches. Two tears were made on each group of four pieces, giving twelve tears in all. The results were expressed in the number of grams of force required to make the tear.

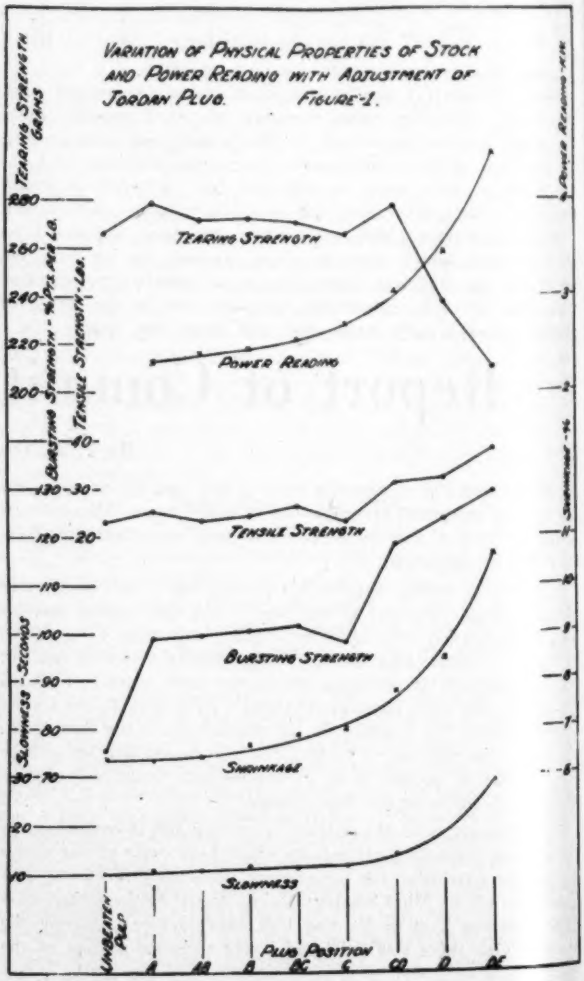
Bursting Strength

Four punches were made on one strip from each sheet with a Mullen tester, thus making twenty-four punches for the set. The result was expressed in per cent points per pound (ream used was 24 x 36—480 sheets).

Tensile Strength

The Scott tensile tester was used. Each of the six remaining 2½ inch strips was cut into two strips 1 inch wide. The tensile strength was expressed as the number of pounds required to break the 1 inch strip.

The plan of the test to determine the effect of consistency at a constant rate of treatment was as follows: A certain setting of the jordan was decided upon. Starting with a tank of pulp at the highest consistency and the jordan running, an outlet plug was selected which gave such a rate of flow that approximately a pound of pulp was treated per minute. When it was thought that constant conditions were obtained, a sample of the pulp was taken. The flow was then stopped, the remainder of the tank of pulp diluted to a lower consistency, and a new outlet plug selected which as nearly as possible delivered the same weight of pulp (by letting



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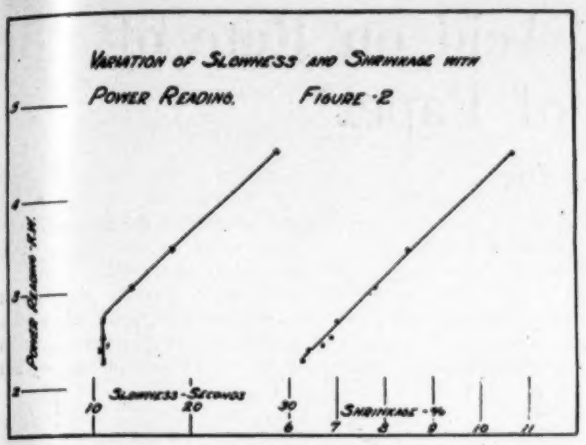


a larger volume flow through the jordan). Another sample was collected as before. The results of this test are given in Table 1. It will be noted that the consistency variation obtained was from 2.62 to 1.41 per cent. Although the weight of pulp treated could not be held as close as is desirable, the results of the pulp tests nevertheless seem to remain constant to within the experimental error.

TABLE 1
JORDANING OF UNBEATEN PULP
Jordan adjustment constant and consistencies variable.

No.	Consistency %	Rate lb./min.	Slowness sec.	Shrinkage %	Bursting Strength % pts./lb.	Tensile Strength lb.	Tearing Strength grams
1	2.62	1.17	18	8.6	105	29	204
2	2.16	1.28	17	9.0	111	30	209
3	2.00	1.28	16	8.8	109	31	219
4	1.93	1.34	17	9.1	108	36	199
5	1.59	1.10	17	8.6	112	33	201
6	1.41	1.10	16	8.4	119	34	205
		Average 1.21					

Variables and Constants

At first thought it seems odd that the consistency change did not produce any alteration in the treatment given the pulp by the jordan. It must be remembered, however, that the weight of pulp treated per minute, and thus the number of fibers, was held constant. The variable was the amount of water passed through the jordan and consequently the length of time that any fiber remained in the jordan.

Discussion of Results

In order to determine the degree to which the physical properties of unbeaten pulp could be altered by one passage through the jordan, a test was carried through, the data for which appear in Table 2 and are graphically presented in Fig. 1.

TABLE 2
JORDANING OF UNBEATEN PULP
Jordan adjustment variable and consistencies constant.

No.	Plug Position	% Consistency	Rate lb./min.	Power Reading k.w.	Slowness sec.	Shrinkage %	Bursting Strength % pts./lb.	Tensile Strength lb.	Tearing Strength gm.
Unbeaten	Pulp				9.5	6.4	76	23	266
1	A	2.15	1.07	2.30	11.0	6.3	99	25	279
2	AB	2.25	1.12	2.42	10.5	6.4	99	23	271
3	B	2.20	1.10	2.47	11.5	6.7	101	24	272
4	BC	2.30	1.15	2.56	11.0	6.9	101	26	271
5	C	2.35	1.13	2.72	11.0	7.0	98	23	265
6	CD	2.40	1.15	3.07	14.0	7.8	118	31	277
7	D	2.40	1.15	3.46	18.0	8.5	124	32	237
8	DE	2.15	1.07	4.50	29.0	10.7	129	38	210
			Average 1.12						

In this test the consistency of the stock and the rate of treatment was held constant while the adjustment of the jordan was changed. Starting with an adjustment which gave practically no refining treatment to the pulp, the plug of the jordan was moved in by a distance corresponding to one twenty-fourth of a turn of the hand wheel. As denoted in Table 2 there is a twelfth of a turn between position A and B, and one twenty-fourth between A and AB, and AB and B, etc.

Effect of Jordan Adjustment

The effect of the changed jordan adjustment on the power consumed and the physical properties of the pulp can be easily seen in Fig. 1. The curves for power, shrinkage and slowness are seen to be smooth and the strength tests, while revealing the usual amount of experimental error, show the expected increase in bursting and tensile strengths and decrease in tearing strength.

Slowness and Shrinkage

The smoothness of the curves of power, shrinkage and slowness against jordan adjustment, led to the plotting of slowness and shrinkage against power, as shown in Fig. 2. These curves reveal what seems to be a close relationship between the slowness and shrinkage and the amount of mechanical work expended on the pulp (since the rate of treatment was constant). From these curves, one is led to believe that the jordan treatment is essentially one of "damage," i.e., cutting and splitting of the fibers.

It is interesting to note the difference in bursting strength between the unbeaten pulp and that of position A. Evidently the thorough separation of the fibers, which could only have been the action of the jordan in this position, has led to the formation of a much better sheet from the standpoint of bursting strength.

The Jordan vs. the Beater

From these tests some information can be gained regarding the efficiency of the jordan in comparison to a beater. Some tests in a 50 pound beater showed that about 0.207 kilowatt-hours per pound ot pulp (bone dry) are required to so beat the pulp that its slowness becomes 23 seconds. From Fig. 2 it is seen that 0.073 kilowatt-hours per second are needed to bring the pulp to a slowness of 23 seconds by the jordan. The figures as they stand show that the jordan uses only about 35 per cent of the energy that a beater does in bringing pulp to a slowness of 23 seconds. These figures, however, must not be taken without some qualifying explanations. With a jordan the position of the plug determines the kind of treatment that the pulp receives. In a beater, however, the pulp can be given a fast or slow beating. The roll can be lowered rapidly and the pulp given a short, drastic treatment. On the other hand, the beating schedule (duration of settings and time of changing settings) can be arranged to give a slight treatment, more of a brushing action so far as the fibers are concerned, which extends over a long time. In both cases the slowness can be brought to the same figure. Undoubtedly the second manner of beating leads to a greater expenditure of energy per pound of pulp. Consequently the efficiency comparison between the beater and the jordan will somewhat depend upon the particular beating schedule used. We believe the beating schedule used when the foregoing energy-per-pound figures were obtained to be about an average one, that is, neither predominantly a short drastic ("cutting") action nor a "brushing" action.

Jordan Efficiencies

The efficiency of the jordan of itself will, of course, vary with the severity of the treatment given the pulp. Thus in Fig. 2 it is seen, if the increase of slowness is taken as a measure of the effective treatment of the stock, that all the power up to 2.75 kilowatts might be considered as wasted and only that above 2.75 kilowatts as going toward useful treatment. In any case, about 2.25 kilowatts were used in electric motor losses, gear losses and in doing mechanical work against the water in the jordan.

Acknowledgment

Acknowledgment is given to Mr. R. F. Layton and Mr. I. J. Rau for their help in obtaining the data for this paper.

Effect of Residual Acid on Rate of Deterioration of Paper*

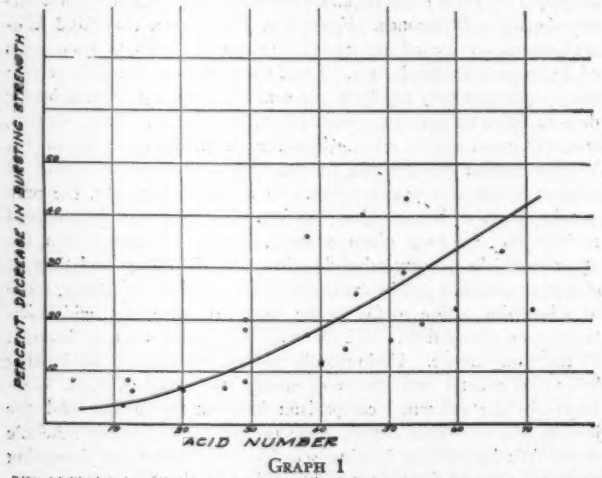
By W. F. Hoffman

The Swedish Government Testing Institute has carried out a large series of tests on the rate of deterioration of paper. In this work the permanency of the paper has been measured by the folding endurance. This work has been reported by Hall,[1] who has reviewed the factors on which the durability of paper depends.

In these tests, the acid number is used to measure the acidity of the paper. The relation of the acid number to the copper number and to the folding durability of the paper was studied. From a series of tests on papers of different types and from different manufacturers, he points out that rosin sizing increases the acidity which causes a deterioration of the paper greater than that of the unsized paper, but that the deterioration of the paper caused by rosin size is not so great, but that rosin sizing can be used for paper requiring a high permanency, provided that the sizing be carried out without the use of an excess of aluminum sulphate. In recommending the conditions for manufacturing a paper which will not deteriorate, he states, "If rosin sizing is applied, the amount of rosin should be kept down to a minimum and not more aluminum sulphate than about 0.8% to each per cent of rosin be used."

The Acid Number

The internal acidity of the paper should be controlled and must not exceed about 20, determined according to the method worked

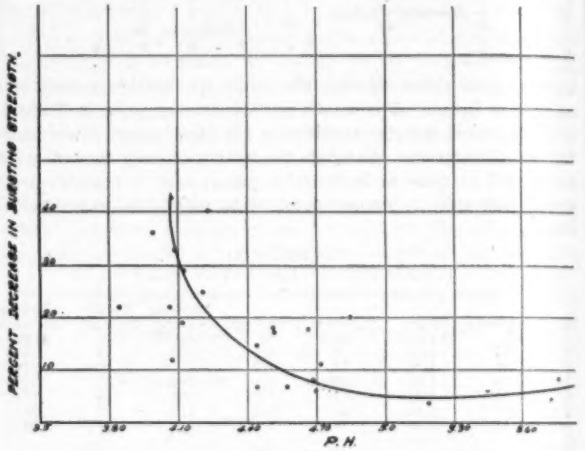


GRAPH 1

The percentage decrease in bursting strength of the paper heated at 85 degrees C. for 72 hours plotted against the acid number of the paper.

out by the Swedish Government Testing Institute. The acidity of the paper referred to by Hall is the acid number is the total number of cubic centimeters of 0.01 N sodium hydroxide required to neutralize to phenolphthalein, the acid extracted from the paper calculate to a 10 gram sample. The procedure is given in detail by Taylor and Hall.[2] They point out that the acidity of engine sized paper is due mainly to the rosin precipitant, usually alum. This, they have taken as internal acidity and of tub sized paper as external acidity, which is due to the aluminum sulphate used to preserve the glue. The external acidity is supposed to be practically harmless as regarding the permanency or durability of paper, while the internal acidity may effect the permanency or durability very markedly. In this paper internal acidity alone is dealt with, as engine sized papers only were used.

The fact that acid left in the paper causes a decrease in strength of the paper has been observed by others.[3] From this we learn that if a paper finish requires a large amount of alum the resulting paper will change, that is decrease in bursting and



GRAPH 2

The percentage decrease in bursting strength of part of the samples of paper heated at 85 degrees C. for 24 hours plotted against the acid number of the paper.

tensile strength more rapidly than a paper made with less alum. When a paper is made requiring a high tensile and bursting strength after passing over the driers the amount of residal acid should be kept to a minimum.

The Copper Number

The copper number of a paper has also been used in studying the resistance of paper to deterioration. It is a measure of the impure forms of cellulose present which tend to weaken the paper. The determination of the copper number is a rather long and complicated process especially for mill control work. However, in the manufacture of very high grade paper, this determination is of value as the copper number of the finished paper measures the relative purity of the cellulose used.

The studies made at The Swedish Government Testing Institute show that the copper number of a paper and its acid number are closely related. When papers are aged by heat, those having a high acid number deteriorate rapidly. This deterioration was accompanied by a corresponding increase in the copper number.

Both the copper number and acid number determinations are made of the finished paper, and, therefore, it is some time after the paper is made before tests can be completed. Thus, they do not readily lend themselves to routine control work. The determination of the hydrogen ion concentration of a solution can be made in a very short time, so if the hydrogen ion concentration can be correlated with the acid number of the paper a more rapid method of measuring the acidity of the paper is available.

Effect of Acidity on Paper Durability

An attempt was made to ascertain quantitatively, if possible, what the effect of acidity, both total and active, had on the

* Paper Number 3 from the Chemical Laboratory of The Northwest Paper Company, Cloquet, Minn.

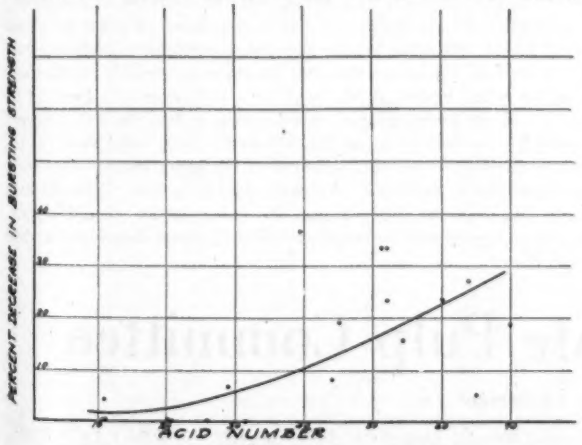
[1] Hall—Paper Trade J. 82, 52-58, 1926; Tech. Assoc. Papers 9, 90-98, 1926.
[2] Taylor and Hall—Paper Industry 7, 1059-1063, 1925.
[3] Tech. Assoc. Papers 9, No. 2, p. 27, 1926.

TABLE 2
THE DECREASE IN BURSTING STRENGTH, THE ACID NUMBER AND THE pH OF THE PAPER SAMPLES AFTER HEATING FOR 24 HOURS AT 85 DEGREES C.

Sample Number	Original bursting strength	Bursting strength after heating	Difference in bursting strength Points	Difference in bursting strength Per cent	Acid number	pH
51	68	58	13	19	45.0	4.19
52	49	37	12	25	39.6	4.02
53	24	18	6	25	51.6	4.12
54	53	45	8	15	54.6	4.11
55	28	26	2	7	28.8	4.67
56	73	53	20	37	38.4	4.01
57	59	54	5	8	44.0	4.46
58	30	20	10	33	52.4	4.06
59	21	20	1	5	65.6	4.09
60	41	33	8	19	70.6	3.84
61	51	51	0	0	12.4	5.44
63	26	25	1	4	12.0	5.80
65	44	44	0	0	26.8	4.46
66	18	19	+ 1	+ 6	20.8	4.69
67	14	14	0	0	20.8	4.56
69	56	56	0	0	11.6	5.23

permanency or durability of paper as measured by the bursting strength. This bursting strength was measured by means of the Mullen tester, which is generally used in measuring the pop or bursting strength of paper. The total acidity is the titratable acidity or total acid content, and the active acidity represents the hydrogen ion concentration and is expressed in terms of pH.

For this series of tests, commercial papers, wrapper, envelope and label, were selected from various sources. Some of these were known to be manufactured for one reason or another with a large excess of alum, which would result in a high acid value in the paper. The white water coming from the machine was about pH 4.0 or less. Others were known to have been made with no excess of alum, the white water coming from the machine being almost neutral, about pH. 6.0. Samples of these papers were tested for strength and heated for deflnite intervals in a steam heated oven at approximately 85 degrees C., removed, and tested after coming to an equilibrium with the room temperature and humidity. After testing the samples they were replaced in the oven for further heating. In the majority



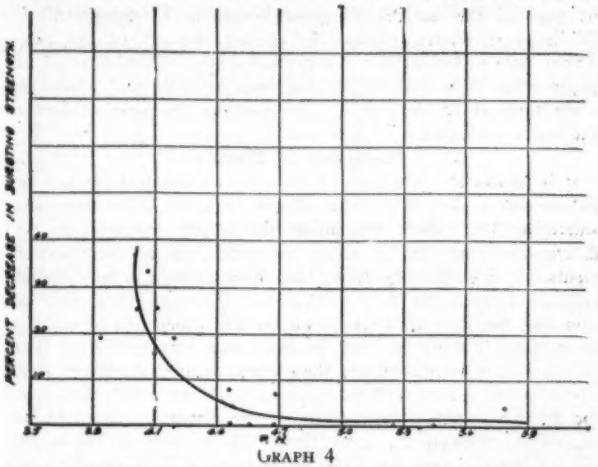
GRAPH 3

The percentage decrease in bursting strength of the paper heated at 85 degrees C. for 72 hours is plotted against the pH of the paper.

of cases, the maximum deterioration was reached in about 72 hours. The results are shown in Tables I and II.

Analytical Methods

The acid number was determined, as described by Taylor and Hall.[2] The paper was shredded for the determination of the acid number and for the determination of the hydrogen ion concentration. For determining the acid number a 5 gram sample was placed in a 500 cc. erlenmeyer flask, 250 cc. of boiling water added in small portions with vigorous shakings between each portion to insure proper soaking of the paper. This was heated for one hour on a steam bath with a reflux air condenser, after which the water was removed from the paper with strong suction and the mat washed with 10 cc. of cold water. The pulp was then returned to the flask and the extraction repeated twice. The filtrate was cooled to room temperature and each fraction titrated separately with 0.01 N sodium hydroxide with phenolphthalein as the indicator. The pH of the paper was determined by placing 250 cc. of water and 5 grams of the shredded paper in a 500 cc. erlenmeyer flask, care being taken, as noted above, to insure



GRAPH 4

The percentage decrease in bursting strength of part of the samples of paper heated at 85 degrees C. for 24 hours plotted against the pH of the paper.

proper wetting of the paper and then boiled for one hour. The mixture was filtered, the filtrate cooled to room temperature and the hydrogen ion concentration determined electrometrically using a hydrogen electrode. This, of course, is entirely an arbitrary procedure, and probably does not give the actual pH value in the essentially dry paper, but due to the great buffer value of the weak acid present in the paper the hydrogen ion concentration, as determined, is probably not far from correct. The reason for using this ratio of water to paper is that it approaches the concentration of the stock going on to the paper machine.

Results Obtained

Table I shows the values for the acid number and the pH of the various samples of paper, together with the loss in strength when the paper was heated for approximately 72 hours at 85 degrees C.

Table II shows the value of the acid number and the pH of part of the samples of paper, together with the decrease in bursting strength when the samples were heated for 24 hours at 25 degrees C. Graph 1 shows the percentage decrease in bursting strength of the paper heated at 85 degrees C. for 72

TABLE 1
DECREASE IN BURSTING STRENGTH, THE ACID NUMBER AND THE pH OF THE PAPER SAMPLES AFTER HEATING FOR 72 HOURS AT 85 DEGREES C.

Sample Number	Original bursting strength	Bursting strength after heating	Difference in bursting strength Points	Difference in bursting strength Per cent	Acid number	pH
4	33	27	6	18	28.8	4.56
7	43	38	5	12	40.0	4.08
10	44	26	18	40	46.0	4.23
12	36	30	6	16	50.0	4.49
15	29	23	6	20	29.0	4.86
20	48	40	8	17	37.8	4.65
24	35	31	4	11	40.4	4.72
26	50	52	2	4	8.6	5.77
51	68	51	17	25	45.0	4.19
52	49	38	11	22	59.6	4.02
53	24	17	7	29	51.6	4.12
54	53	42	11	19	54.6	4.11
55	28	26	2	7	28.8	4.67
56	73	47	26	36	38.4	4.01
57	59	51	8	14	44.0	4.46
58	30	17	13	43	52.4	4.06
59	21	14	7	33	65.6	4.09
60	41	32	9	22	70.6	3.84
61	51	48	3	6	12.4	5.44
63	26	24	2	8	12.0	5.80
65	44	41	3	7	26.8	4.46
66	18	17	1	6	20.8	4.69
67	14	13	1	7	20.8	4.56
69	56	54	2	4	11.6	5.23

hours plotted against the acid number of the paper. Graph 2 shows the percentage decrease in the bursting strength of part of the samples of paper heated at 85 degrees C. for 24 hours plotted against the acid number of the paper. The percentage decrease in bursting strength of the various samples of paper heated at 85 degrees C. for 72 hours is plotted (Graph 3) against the pH of the paper. The percentage decrease in bursting strength of part of the samples of paper heated at 85 degrees C. for 24 hours is plotted (Graph 4) against the pH of the paper. These data indicate that the permanency or durability of the paper when measured by the bursting strength, and heated for some time at 85 degrees C. decreases as the acid content of the paper decreases.

Discussion of Results

It is impossible to draw any definite conclusions from any one determination, but when the samples are all taken into consideration the papers containing the larger amounts of acid deteriorate more rapidly under the conditions of these experiments. It is evident, however, that there appears to be a definite relation between the acid number and hydrogen ion concentration and the rate of deterioration of the paper. In a study of these data, it must be kept in mind that three different types of paper have been used, and these manufactured at various mills. There is not a definite relationship between the acid number and the hydrogen ion concentration of the paper as they do not necessarily measure the same thing, but, in general, the hydrogen ion concentration increases as does the acid number.

When the hydrogen ion concentration of the paper, as determined by the method described above, does not exceed that represented by pH 4.5, there is very little deterioration of paper as measured by the bursting strength when heated for 24 hours at 85 degrees C., as shown in Graph 4. However, when heated for a longer period of time (Graph 3) there is an appreciable decrease of the bursting strength up to about pH 4.7. These results further show that if the rosin sized paper is to be made which will not decrease in bursting strength on ageing, an excess of alum must be avoided, or the excess acid formed must be neutralized by suitable means.

Effect of Using Excess of Alum

The effect of using a large excess of alum in the beater is well illustrated in the case of four of the samples of paper whose manufacturing history was known. Samples 65 and 69 were run on the machine at a time when the white water had an acidity of less than that equivalent to pH 6.0, and both of these papers deteriorated but slightly on heating in the oven. In both cases no excess of alum was used. In contrast to these papers, samples 56 and 58, were run on the machine when a large excess of alum was used in the beater and the white water had an acidity greater than that equivalent to pH 4.0. These two samples of paper lost 36 per cent and 47 per cent respectively of their original bursting strength on heating in the oven for approximately 72 hours. These data again show that a strong paper whose bursting strength will not decrease on ageing must have an acidity less than pH 4.5, as determined by the method described above, which corresponds to approximately pH 5.0 for the acidity of the white water. This method of ageing in an oven at an elevated temperature gives results comparable to a longer ageing period at room temperature. Samples of paper similar to 65 and 69 have been ageing in the laboratory for several months with no appreciable loss in bursting strength, while, under the same conditions, samples similar to 56 and 58 deteriorated as much as 50 per cent in bursting strength in two or three months.

Summary

There have been two methods suggested for determining the probable resistance of a paper to deterioration. These are the copper number and the acid number. Both determinations require samples of the finished paper. If the deterioration of the paper together with an increase in the copper number is caused principally by an excess of acid in the finished paper then a measure of the acidity of the white water coming from the paper machine should indicate the probable resistance of that paper to deterioration.

The effect of controlling the hydrogen ion concentration of paper stock during the manufacture of the paper within the limits noted above, on the sizing and color of the finished paper are being studied.

The deterioration or aging of a series of papers as measured by the bursting strength has been determined. It was found that the higher the acid number, and the higher the hydrogen ion concentration, the greater, in general, was the decrease of the bursting strength of the paper. If the acid number of paper is below about 25, as measured by the Swedish Government Testing Institute's method, the paper does not decrease appreciably in bursting strength when heated at 85 degrees C. for periods as long as 72 hours. If the hydrogen ion concentration is less than that represented by about pH 4.5, as determined in these tests, there is no appreciable loss in bursting strength of the paper except when they are heated at 85 degrees C. for more than 24 hours. When heated for a longer period the hydrogen ion concentration should be less than that represented by about pH 4.7. to prevent deterioration due to acid.

Report of the Sulphate Pulp Committee

By C. K. Textor, Chairman[1]

The work undertaken by the Sulphate Pulp Committee last spring consisted of:

1. The determination of the amounts of soda passing up the recovery room stacks and a study of means of recovery of such soda.
2. A study of methods for ascertaining the quality of sulphate pulp.

Stack Losses

The subject of stack loss is one which has been subjected to but little investigation because of the difficulties and time required for obtaining accurate results. In general, the soda passing up the stack is estimated by difference; it is assumed that soda losses which cannot be accounted for as losses in pulp washing, lime sludge, evaporation, etc., are due to entrainment of soda in the stack gases. In the few cases where actual tests have been made to determine the quantity of chemicals lost in recovery room gases, the results have failed to indicate sufficient losses at this point to account for the discrepancy between total losses as represented by the quantity of replacement soda used and the sum of the reported losses, i. e. in washed pulp, lime sluge, etc.; in fact, the actual soda discharge from the stack is indicated as being only about half of what is estimated by difference.

During the past summer a rather extensive test was made to determine stack losses in a soda mill, and the results in general confirm the published reports of similar tests made previously. It was found that about 5 per cent of the total soda charged into the incinerators was discharged with the gases.

The investigation of means to recover soda from the stack gases proved to be a larger order than your committee had bargained for. The difficulties attendant to accurate estimation of chemicals passing up the chimney are here aggravated by the difficulties of obtaining and operating recovery equipment of experimental size.

[1] Member TAPPI; Northwest Paper Co., Cloquet, Minn.

The result is that we are unable to make a complete detailed report of such apparatus at the present time, although scrubbers, mechanical separators and electrostatic precipitators were included in this study.

Electrical apparatus of experimental size was not available and so the manufacturer's guarantee of 90 to 95 per cent recovery represents our only assurance of the practicability of this apparatus. The installation is expensive, though probably not as costly as is generally believed; a precipitator costing $50,000 would probably serve a one hundred ton sulphate mill provided excess combustion air was kept within reasonable limits.

A mechanical separator of the cyclone type was tested out, and found to achieve remarkable results with dusts fine enough to pass a 300 mesh screen. However, the sodium sulphate present in the incinerator gases is in extremely fine division and this separator applied to recovery room gases indicated a removal of only about 30 per cent of the entrained soda.

There has recently been placed on the market a mechanical separator employing the principle of the whirlwind or vortex, and it is is expected that this device will be given a trial on sulphate stack gases in the very near future.

Experiments with wet scrubbers were distinctly disappointing. Passage of the gases over wet surfaces or through sprays of large drops removed only the large particles of soda, though considerable sulphuric acid was collected in this way. When a very fine spray was used, the percentage removal of soda increased but

RESULTS OF COOPERATIVE PULP STRENGTH TESTS

TABLE 1

DATA OF THE TESTS MADE

Laboratory	Minutes beaten	Strength Factor: Pulp No. 1	Pulp No. 2	Pulp No. 3	Pulp No. 4	Pulp No. 5
A	0	36	45	61	57	36
A	30	128	122	129	121	103
A	45	140	138	139	139	121
A	60	144	137	146	143	125
A	75	140	...	137	140	124
B	30	162	167	156	130	132
B	45	173	169	160	152	152
B	60	186	178	169	141	145
B	75	...	170	...	...	...
C	0	38	53	50	38	44
C	15	90	98	94	90	91
C	30	114	127	112	114	112
C	45	127	138	121	127	121
C	60	136	135	128	136	136
C	75	133	131	134	133	134
C	90	130	...	131	130	131
D	30	...	111	...	91	...
D	50	136	121	110	99	107
D	60	138	126	119	102	106
D	70	137	130	124	97	102
D	80	...	124	118	...	...
E	0	71	99	60	78	58
E	30	151	153	136	142	123
E	60	163	179	164	160	137
E	90	181	175	163	165	152
E	120	191	191	172	176	163
E	150	195	190	185	170	177
E	180	202	200	181	182	168

led to the addition of equipment to remove the entrained solution from the gas. The experiments so far conducted with scrubbers cannot be considered conclusive, but the indications are that scrubbers will not prove satisfactory in recovering soda from stack gas.

Determination of Pulp Quality

The second general undertaking, that of establishing a method of determining pulp quality, has been begun as an investigation of the methods in routine use by the Thilmany Pulp & Paper Company, Nekoosa-Edwards Paper Company, Wausau Sulphate Fibre Company, Central Paper Company, and The Northwest Paper Company. Each of these mills has established a pulp testing procedure by which the operators, by strict attention to all details, get results on duplicate samples which check within 2 per cent. In the cooperative investigation here reported, each of the mills tested five samples of kraft pulp. The detailed data of these tests are shown in Table 1.

The equipment and procedure used in the several laboratories vary considerably and will account in part for the variation in magtude of the strength figures—in all cases the strength is the bursting strength and in no case were other tests applied, which is perhaps unfortunate. Laboratories A, B, and C are most similar, both in regard to equipment and procedure. Each employs a miniature beater with an adjustable bedplate, forms sheets on a

TABLE 2

MAXIMUM STRENGTH DEVELOPED, EXPRESSED AS PERCENTAGE OF THE STRENGTH OF PULP NO. 1

Laboratory	Maximum strength developed: Pulp No. 1	Pulp No. 2	Pulp No. 3	Pulp No. 4	Pulp No. 5
A	100	95	101	99	86
B	100	96	91	82	82
C	100	99	96	98	98
D	100	94	90	74	78
E	100	99	92	90	88
Average	100	97	94	89	86
Avg. (omit D)	100	97	95	92	89

suction mold, squeezes the sheet, under pressure, dries on a hot plate, trims to size, and finally dries to constant weight in an oven and tests at once. Laboratories A and C beat with constant pressure on the bedplate while Laboratory B beats under constant power conditions. Laboratory D employs a ball mill instead of a beater, but sheet making and testing equipment are similar to A, B, and C. Laboratory E conducts the beating in equipment similar to A and C, but uses a higher consistency and less bedplate pressure. The sheet forming is similar to that of the others, but after wet pressing, Laboratory D air dries the sheet on a metal plate and makes the strength tests on the air dried paper.

In order to convert the figures to a basis for comparison, and to screen out differences inherent to differences in methods, Table 2 has been prepared in which the maximum strength found is expressed as a percentage of the maximum strength of Pulp No. 1 determined in the same laboratory. The possibilities of predicting quality on the basis of initial pulp strength led to the compilation of Table 3, in which strengths are again based on that of Pulp No. 1.

An examination of Table 3 presents contradictions which none of your committee has been able to reconcile, though there is a fair agreement as to relative ranking. Laboratory E, testing air dry paper, attains results checking both averages within experimental error. Laboratory D, using ball mill, shows the greatest differences in pulp strength; in this series, Pulps 4 and 5 show only 74 and 78 per cent of No. 1's strength while on the average, omitting Laboratory D's test, they show 92 and 89 per cent respectively. Laboratory C's indicates that the five pulps are, within

TABLE 3

INITIAL STRENGTH, EXPRESSED AS PERCENTAGE OF INITIAL STRENGTH OF PULP NO. 1

Laboratory	Pulp No. 1	Pulp No. 2	Pulp No. 3	Pulp No. 4	Pulp No. 5
A	100	125	170	158	100
C	100	143	135	100	116
E	100	139	85	110	82
Average	100	136	130	123	99

experimental error, of equal strength, while Laboratory A shows comparatively little difference. The results obtained by Laboratory B show a considerable spread in maximum strength and are in fair agreement with the findings of Laboratory D. Unfortunately, it is not practicable to carry a test of this nature to the machine room and run each of the five pulps into paper over the same machine after refining with the same beaters and jordans.

When the data of the initial strengths of the several pulps are considered, the relationships shown by the maximum strengths are considerably distorted, especially as regards Pulp No. 1.

In summarizing the coperative strength tests, we must conclude:

1. That some of the five procedures do not produce good indexes of pulp quality.
2. That the kinds of refining done, i. e. cutting, hydrating, etc., must vary considerably, and we recommend that the investigation be continued, with special reference to freeness, and paper machine results.

Uses of Low Pressure Steam in Paper Manufacture

By Warren B. Lewis [1]

Industry has its slogans, epigrams, and wise sayings no less than philosophy, politics, and religion, and in all four fields they are about equally misunderstood and wrongfully applied. The human being has a habit of grasping at a saying and interpreting it to support his own point of view, with the result that he as often makes an error as an improvement in his line of conduct. As this paper is not a philosophical treatise the author will limit himself to stating a theorem which has been discussed and written about so many times as to possess no new point of interest; but in the demonstration of this theorem he will try to point out the most blatant errors which have been committed in an attempt to apply it to industry, not only by executives who can hardly be expected to fully analyze it but by engineers who should know better.

Briefly stated the theorem is this. "Power derived from the act of reducing high pressure steam to low pressure costs nothing." There are many variations in the expression of this idea but they are all fundamentally the same. One of the popular variations is this. "When all of the exhaust steam ejected by a prime mover is used for process work, the highest degree of efficiency is realized."

As this paper is neither theoretical nor profound the author confines himself to comparatively simple explanations of the gross errors which have been committed. He will attempt to show that there are really very few plants enjoying a high degree of efficiency, but on the other hand there are many score which enjoy the bliss that comes from ignorance.

This paper is not confined to the paper industry but is based on many years of study and observation in plants where heating, boiling, and drying operations are a very considerable part of the cost of production.

Paper Mills and Textile Plants

The outstanding examples, outside of the paper industry, are woolen mills finishing their own goods, and in plants bleaching, dyeing, mercerizing and finishing cotton piece goods. In all three of these industries high pressure steam is used for some operations outside of mechanical power. Low pressure steam is used for drying and ventilating, and sometimes boiling. Considerable quantities of hot water are required. Water must be pumped, compressed air may be needed, but all of these may be reduced to the simple b.t.u. which must in the last analysis be dug out of the coal pile.

A few years ago a young engineer connected with a paper mill read a paper before one of the meetings of the American Society of Mechanical Engineers in which he analyzed the power and heating requirements of a paper machine, and arrived at the conclusion that an engine which utilized 50 pounds of steam per indicated horsepower would exhaust just enough steam to serve the subsequent purposes of the paper machine. Here is one of the most glaring examples of misapplied principle and misdirected effort. Had a source of mechanical power been used which utilized but 25 pounds of steam per indicated horsepower sufficient power would have been developed to not only drive the paper machine but to drive another one like it, or some other machinery not utilizing low pressure steam.

In a cotton piece goods finishing plant with which the author is familiar there are many small engines driving drying cylinders, printing machines, tenter frames, etc., the exhaust steam from these being delivered into a general main from which low pressure steam is taken for drying and heating purposes. There is no evidence of any exhaust steam being discharged to the atmosphere and the management believes that the so called heat balance is nearly perfect. In the main engine room of this plant there are large prime movers operating condensing with at least 85 per cent of the heat of the steam being discharged with the condensing water. If this particular plant used prime movers ejecting 18 to 20 pounds of steam per indicated horsepower and operated non-condensing, all of the mechanical power required would be generated with no heat to be discharged either to the atmosphere or through a condenser.

A well balanced worsted mill finishing its own goods can develop all of the mechanicaal power required to run the entire plant with a complete utilization of latent heat excepting that represented by radiation and stack losses.

In a small paper mill with which the author is familiar a complete study of the mechanical power and heat uses has resulted in a reduction of fuel and labor charges by an amount which, to say the least, is highly satisfactory to the management. Yet previous to the alterations the belief existed that the so called heat balance left little to be desired.

The greatest error is made in the manner of approach. The whole situation is too often worked out by beginning at the wrong end. The start is made in the boiler room, whereas that should be the finishing point. Endless papers have been written and read on boiler efficiency, turbine and engine efficiency, modern developments in furnaces, methods of firing coal, whereas the greatest waste comes from the improper application of heat and power.

The underlying principle which governs the design and operation of a public utility plant is radically different from that pertaining to a manufacturing plant in that in the former the product sold is power which must compete with the isolated plant in cost, while in the latter case power is but an incidental item, and in many cases may be simply a by-product. In any event power, in any of the industries previously mentioned, is so indissolubly linked with the necessities of the process that the two must be considered as one, else the design will be faulty.

Study Heat Requirements

The correct method of approach is to study first the minimum requirements for heat, and I stress the word minimum. It is an easy matter to dispose of exhaust steam but it is not so easy to realize the greatest amount of heat from a given quantity of steam. We should, therefore, start our studies with an analysis of every process and every machine which utilizes heat and, if necessaary, make such changes in equipment as will reduce the amount of heat required to a minimum.

In a paper drier, for example, the first step is to dry the paper with the least amount of steam. This may require a change in the method of draining water and air from the driers or of increasing the velocity of steam through the driers, and possibilities along this line have been by no means exhausted. It may mean a combination of steam in the driers and hot air outside, and if the latter is used the method of heating the air should be given its due consideration. In any event low pressure steam can be used and preferably at a pressure no higher than is absolutely necessary. This may mean more surface in the apparatus itself, and it is rarely that additional heating surface will not be justified from the standpoint of true economy.

In certain types of apparatus, such as bleach boilers, operations can be started with hot water heated by low pressure steam, not

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only resulting in the quickening of the process but a real economy in the use of heat.

Heating systems will operate successfully at atmospheric pressure even when units are located a long distance away from the source of heat. It may be necessary to increase the amount of heating surface or to take the necessary steps to circulate the steam through the system, but again it is rare when this is not justified from the standpoint of true economy.

In worsted dyeing it has been customary for years to use high pressure steam in the dye kettles and there are few dyers who will believe that the work can be done equally as well with low pressure; and yet by starting with hot water the dye kettle can be boiled in less time and with less steam, at a pressure of 5 pounds than at a pressure of 100 pounds, but the piping arrangements will have to be entirely different.

If, therefore, in any plant we start first with a list of machines utilizing heat in one form or another, and then determine the way in which low pressure steam can be substituted for high pressure, and furthermore how to obtain the final heat with the least amount of steam, we will find that we have reduced the total amount of live steam used and increased the amount of low pressure steam.

Conserve Heat Units

The next step is to conserve the heat which performs no useful work. This is not as simple as the statement might make it appear, because it involves the calculation of pipe line sizes for minimum losses aand the elimination of every foot of pipe that is not absolutely necessary.

We finally arrive at a figure representing the total amount of low pressure steam required for any given condition of operation, but we must repeat this analysis for other conditions, such as part time operation and excessive production, that we may have an average figure (as well as a maximum and minimum) which will represent operations as they may have been carried on over a period of years.

So far we have forgotten mechanical power nor are we greatly concerned except to obtain all that we can from the steam which leaves the boilers at one pressure and is ejected from the power unit at a lower pressure. It is evident that if we have used our wits to devise methods whereby the exhaust pressure is the minimum possible that certain benefits will accrue. Not infrequently there are cases where a small percentage of the machinery cannot be operated at quite as low a pressure as the remaining, and it may be better to utilize direct steam rather than to sacrifice the entire system.

Consider Prime Movers and Steam Use

As it is evidently desirable to obtain the greatest amount of mechanical power possible from a given amount of steam we must consider types of prime movers and initial pressures. If we can get 50 per cent more mechanical work out of a turbine operating with an initial pressure of 350 pounds and an exhaust pressure of 5 pounds than we can from one with an initial presssure of 150 pounds we cannot afford to overlook that fact. In our design, whether for new construction or in reconstruction, we must bear in mind the ultimate, although we may have to sacrifice something temporarily. The same consideration must be given power plant auxiliaries, choosing a type that will require the least amount of steam for the mechanical work performed, and we finally arrive at the amount of steam required at the boiler nozzle to manufacture so many tons, yards, or bushels of product.

I would not belittle the importance of recent boiler designs, boiler settings, methods of firing, etc., but more stress has been laid upon this than upon the subsequent uses of steam, and it is my belief that for a given sum of money more can be accomplished between the boiler nozzle and the finished product than between the boiler nozzle and the coal bin. Boiler efficiencies do not vary from day to day to any great extent and it is a comparatively simple matter to find out where faulty operation lies, but efficiency in the use of heat in the fanufacturing end can and does vary rapidly, particularly when extensions or alterations are made. In some of the older plants where small engines are scattered about it is possible to realize 1 horsepower from 70 pounds of steam, taking into consideration pipe line losses, engine inefficiencies, etc., while with well designed equipment it is possible to realize 1 horse power from 20 pounds of steam, or, to put it another way 3.5 times as much mechanical power can be obtained from the same amount of steam taken from the boilers.

The writer is familiar with instances where it is possible to produce more mechanical power than can be used. In such a case the amount of low pressure steam ejected from the prime mover is insufficient and live steam must be admitted. This is almost an ideal condition because with decreased production the balance is favorable, while with increased production live steam is admitted to the low pressure system with no loss of heat.

Power which is not a by-product is in direct competition with public utility power. In many sections of the country power can be purchased at a lower price than can be manufactured on the premises when it is not a by-product, and frequently a combination of by-product with purchased power is highly economical.

Study of a Textile Finishing Plant

As an application of the principle stated in the foregoing the writer refers to a textile finishing plant wherein the requirements of power and heat are very similar to those of a paper mill, although the balance between the two may be quite different. In this plant there was one cross-compound condensing engine developing 450 indicated horse power, one simple condensing engine developing 250 indicated horse power; one simple non-developing 250 horse power and twenty-six small engines rated from 10 to 30 horse power, all exhausting into processing apparatus. Under the most favorable rate of production all of the exhaust steam was used at a pressure of about 12 pounds but at any other rate of production there was either a deficiency or excess of low pressure steam.

The processes involved boiling out, drying, preparation of liquors, heating of the buildings and the use of heated air for vapor absorption. Besides these were various processes requiring steam at boiler pressure. Steam was generated in thirteen boilers operated normally at rating and the actual amount of low pressure steam used expressed in horse power was about one-half of the total steam generated.

The first operation requiring heat was the boiling out process which was done by introducing liquors into bleach boilers and boiling at 12 pounds pressure for about twelve hours with live steam. This operation was changed by heating the liquors with low pressure steam before they were run into the boiler and by using low pressure steam through a circulating system until the whole mass had reached a temperature very nearly that of the steam. Live steam was then introduced to continue the boiling at a temperature higher than that of the low pressure steam.

The Drying Operation

The next step in the process was the drying of the material on copper cylinders. Steam at 10 pounds pressure was used from the exhaust of a small engine and the balance between the power and the heat was very nearly perfect. The piping of these cylinders was changed so that the steam passed through the various sections in series and the water and air was withdrawn by a vacuum pump, resulting in the use of less steam at a lower pressure whereupon the amount exhausted from the engine was in excess. There were ten sets of driers in this plant all of which were altered in a similar manner, and it at once became apparent that the amount of steam derived from the small engines was greater than was necessary for drying.

The third process was in the drying of cloth after it had been starched on what is called a tenter frame. This drying was done with live steam coils under the cloth and the exhaust from the small engine driving the frame was not used at

the machine. A large fan with low pressure heating coils was installed and air heated to a temperature of 200 degrees was blown on to the cloth as it passed through the frame, resulting in a very much more rapid removal of moisture, a higher rate of production in the machine and the elimination of the use of live steam.

In the dye house ceiling condensation was prevented through the use of live steam coils close to the roof. This was replaced by circulating warm air heated with low pressure steam. In the mercerizing department, liquors were heated with live steam coils placed in vats, the temperature of the liquors being 150 degrees F. This was altered by pumping the liquor through a closed coil heater with low pressure steam in the shell.

The Heating System

The heating system of the plant consisted of high pressure steam coils draining back to the boilers through return traps. This was changed at considerable expense to a vacuum system to operate at less than 5 pounds. All of the small engines were taken out and electric drives substituted using variable speed motors, and as the work progressed it was evident that the amount of steam being derived from the noncondensing engines was insufficient due to the fact that the Corliss non-condensing engine could develop more power per pound of exhaust steam ejected than could the small engines, or, to express the matter in another way, the mechanical power requirements remaining constant there was less steam in the exhaust main. To correct this deficiency the simple condensing engine was operated non-condensing and ultimately the cross-compound engine was operated as a simple non-condensing engine, the low pressure cylinder being disconnected.

Power being produced with engines ejecting 25 pounds of steam per indicated horse power as against probably 70 pounds with the small engines there was sufficient reduction in the amount of exhaust steam available that it became necessary to eject live steam into the system through a reducing pressure valve. At first thought it might seem that little could be gained in doing this but actually the heat which had been discharged through the condensers was being recovered and the flexibility of operation had been tremendously increased. Hundreds of feet of high pressure steam pipe were removed and the piping system reduced to the utmost simplicity. The boiler load was reduced to the capacity of seven boilers and the total amount of steam used per yard of cloth finished was reduced one-third.

In this plant no steam is ever exhausted to the atmosphere nor to a condenser, and barring the unavoidable radiation losses the use of fuel has been reduced to a minimum. In fact in this plant it would be possible to develop 200 horse power for delivery outside of the plant if there was a complete balance between the power and the low pressure steam requirements.

This is by no means an unusual case and any power plant engineer will recognize the possibility of repeating this performance in plants with which he is familiar.

Medium sized non-condensing engines will eject from 40 to 42 pounds of steam per kwh when operating at 150 pounds initial pressure and 5 pounds back pressure. Turbines operating at 250 pounds initial and 150 degrees of superheat and 5 pounds exhaust pressure will develop a kwh with 30 pounds of steam, and with such a unit the actual cost of mechanical power is hardly more than that represented by fixed charges and direct labor.

To sum up the writer emphasizes the following points.

(1) Temporarily forget the mechanical power requirements and the boiler plant and study the uses of heat.

(2) Every operation requiring heat should be done with low pressure steam wherever possible.

(3) Reduce the amount of low pressure steam to a minimum through the study of machines and processes.

(4) Adopt a type of prime mover that will give the greatest amount of mechanical power per pound of steam ejected.

(5) Spend your money first on improving apparatus and piping systems utilizing low pressure steam before worrying about the boiler plant except for some other reason than efficiency of the latter.

Converting of Light Weight Papers

By L. B. Case[1]

The intent of this paper is only to cover briefly the principles of coating, printing and embossing light weight decorative papers and not touch upon any of the secret processes known only to one or a few manufacturers of special grades of decorative effects.

The decorative light weight papers may be classified under six general headings, namely wall papers, box papers, lining papers, general utility wraps, general utility trim and single purpose servers.

Under the heading of wall papers comes the full line of decorative hangings, ceiling and borders. Box papers may be classified as those papers generally used for effective cover work now becoming so popular for containers of predetermined dimensions. General utility wraps may be classified as those papers used in making up packages from paper delivered in roll form without any regard to the dimensions of the package previous to making up the wrap.

Three General Classifications

There are three general classifications for converting, namely, coating, printing and embossing.

Coating—Under the heading of coatings the major portion of the production is manufactured on brush machines and most of the coating materials are of the sized clay family. Where the very light weight papers are tinted we quite often find staining operations in use. This usually is done by what is known as the roll type coater, the staining material being very thin and of a very strong aniline. Sometimes the brush type coater is used, sometimes the roll type, and quite often the knife method and in very unusual cases the spray method is used, but generally speaking the spray method is entirely too slow for profitable production.

The demand for varnish and lacquer surfacing is increasing, particularly in the fields where a high finish or where it is necessary to build up a pack forming an insulating sheet. Most of the varnishes and lacquers are applied with either rolls, a knife, or a spray. Wax coating comes under the same general heading, but as it is so well known in the trade there is no necessity in this paper to devote any time to this particular subject.

Drying Coated Goods

There are three well known methods of drying coated goods, namely, festooning, horizontal arched straight pass, and the tower, but the latter two are only used in special cases, probably 95% of the drying of light weight papers is done on a festooning machine. This method relieves the paper of any excessive tension and it allows for the running of more lineal feet of goods in a given length of drying distance than is possible with either the horizontal arched straight pass, or the tower principles.

Printing

Under the heading of printing we might classify the methods into plate printing, surface printing and intaglio printing.

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Plate printing is the well known principle found in practically all regular print shops using the regular printers inks and supplying the demand for book, magazine and general news work. These machines as a whole are designed so as to accommodate some sort of a plate, either single or in multiple, having the design to be printed out on same and is known as the make-ready when in position ready to print. This class of work is found in the decorative light weight paper fields in printing some of the box papers and the general utility wraps and the principle is also applied to the printing attachments used in making multi-color paper napkins, but due to the fact that it is usually quite possible to detect a repeat of the pattern on account of the joints in the plates, this class of printing is not very popular and it also takes considerably more time to assemble a make-ready than it does when using a regular surface print block. The term repeat merely has reference to the distance between two given points at which the pattern is duplicated.

Surface Printing

Surface printing is the most popular method of producing the decorative effects on light weight papers and the machines that print the surface work are made in from 1 to 16 colors. In the box paper linings, general utility wraps and general utility trims, the most popular range in colors is from 1 to 6, but the wallpaper field calls for 12 colors and in some cases this runs as high as 16 colors.

In order to assure accurate registration these surface print machines are designed with the different blocks and color units assembled around a single large impression cylinder, and the gearing is such that the impression cylinder and each of the color units are tied together mechanically through gears having the same pitch diameter as the diameter of the large impression cylinder and in this way eliminating any possiblity of too much back-lash in the gearing throwing the patterns out of register in relation one to another.

The prints are often called blocks in this class of printing and the printing area is raised so this classification in one sense of the word overlaps the plate principle. Up to recently the accepted principle of manufacturing was to take a clear, straight grained maple stick whose diameter will finish a little under the diameter to give the desired repeat for the patterns, bore this block with a clearance hole to take the shaft which it later rotates on and in the ends are placed steel inserts which fit the shaft.

The pattern to be cut on the surface print rolls is laid out with transfer paper and transferred onto the finished surface. The portion of the pattern which is to be printed in a single color is raised on the circumference of the print roll and there are as many print rolls for a pattern as there are colors for the pattern. In cutting a block, which means raising the design, the block cutter usually outlines the design with a very thin strip of brass, which is bent to allow the curve of the design itself and then the body part is filled in with usually a felt well glued. After the pattern is raised the block is ground to a true circle and is then ready for printing purposes.

Recently there has been perfected an aluminum alloy that when cast makes a very close grained texture and is easily routed with an ordinary routing tool. This metal block eliminates the difficulty sometimes experienced with the wood ones due to shrinkage and distortion on account of local humidity conditions or slightly cross grained material in the block itself. The amount of color that the metal block will carry may be controlled by a chemical bath which the block may be subjected to before printing.

Considerable development work has been carried on in printing with a rubber and other composition surfaces. These are special in detail and no description of them is included in this paper.

Distribution of Surface Printing Machine

The distribution for a surface printing machine may be either of two types, namely the roll type or the sieve cloth type. There are certain cases where the roll type of distribution has to be used. This may be found in instances where a heavy color of some description is used, but the major portion of the surface printing machines are fitted with what is commonly known as a sieve cloth, which carries the thinned down colors much better than rolls. The colors may be either of an aniline nature or water colors, but most of the work comes in the water color family, with quite a range of sizes.

The sieve cloth distribution includes a color pan or a fountain with a furnishing roll in same and directly above this furnishing roll is one of a series of rolls which supports an endless felt, which is really a miniature of a felt used in a paper machine. In operating, the color is carried from the color fountain by means of the color furnishing roll up to and against the sieve cloth. Along the line of travel is located a doctor blade and the tension, which is adjustable between the doctor blade and the sieve cloth, determines the amount of color carried over to the print block. The path of travel is so laid out that the sieve cloth contacts with the print block at a point where it is not supported by a backer roll. In this way we get a kissing action between the sieve cloth and the print roll, which allows for any slight irregularities in the print roll diameter itself as measured across its face and then it is evenly inked and does not produce a clouded effect upon the paper being printed.

There are adjustments on the multi-color machines, which allow for the correct registering of the number of print blocks assembled so as to produce a finished printing surface, same as the design calls for.

In both the plate printing and the surface printing work it is only possible to produce a single tone effect for each color; in other words, we either have to contact with the paper and lay an even surface of color over the printed area and of a uniform thickness or we do not print at all. This does not require very much pressure, so the productive speed is determined by either the quality of the paper, the drying, or the ability of the inks to stay fast to the print blocks without being thrown off by centrifugal force. Surface speeds of 400 lineal feet per minute are regularly found and at times this runs to as high as 600 lineal feet, but where the light weight papers in the general classification of tissues are used, it is not possible to handle the goods at the speed of more than 150 to 200 lineal feet per minute.

There are a few instances where an arched straight pass dryer is used with the surface printers, but the major portion of the drying is done with the aid of a festooning machine and a forced circulation of air.

Wall papers, box papers, lining papers, a few of the general utility wraps, some of the general utility trims, and the single purpose serves, where marked in sheet form, are surface printed.

Intaglio Printing

Intaglio printing is sometimes known as engraved roll or sanitary printing and the principle is the basis on which the modern rotogravure printing has been developed.

Intaglio printing as known to the light weight decorative paper fields is a principle involving the reverse of that used in surface printing. In other words, instead of raising a pattern to be printed above the surrounding surface of a print roll or block, the pattern is engraved or etched into the surface of a copper roll, forming a very slight depression. The depth of the depression determines the amount of color applied and by varying the depth of the depression over the area to be printed with a single color it is possible to produce a multi-tone effect with a single color distribution.

Copper rolls are usually used for the printing medium, these are assembled on a series of tapered mandrels supporting each of the copper rolls in position and grouped around a single master impression cylinder with gearing along the lines of the previously described surface printing design.

In distributing color, which is a thinned down ink or aniline

sized usually with a varnish as a binder, it is only necessary to use the color pan or fountain with a furnishing roll rotating in same and contacting direct with the engraved copper roll, flooding the engraved copper roll with color. A short distance from the point of application of color to the copper roll is located a perfectly smooth straight faced doctor blade with a tension adjustment on same. This doctor blade wipes off all the color on the copper roll face, except where it is engraved and over the engraved area the color is carried under the blade, the amount depending upon the depth of engraving, and thence over to the impression cylinder side where the paper contacts with the engraved roll.

Intaglio printing requires considerable pressure, as it is necessary to force the color from the depth of the engraving out to and against the goods. This means the productive capacity of a single machine is not great as may be realized from surface printing. Usually 75 to 150 lineal feet of goods per minute is a fair average printing speed.

The same type of drying as used for surface printing is used with intaglio printing, but the calculating of a drying system is somewhat different, as intaglio means the evaporation of compound solvents contained in the colors, while surface printing is mostly a case of evaporating water.

Some of the special wall papers are intaglio printed. This is found where shading and two toned effects are wanted with a single color. It is also used to some extent in the box paper field, linings, general utility wraps and in a few instances we find some trims intaglio printed—this, however, is very unusual.

Embossing

Embossing and roughing is one and the same thing. In the print shops the term roughing is usually used, while in the decorative field it is better known as embossing and these terms are applied to the distorting of a smooth surface so as to produce decorative effects without the necessity of printing.

There are two distinctive types of embossing machines, namely, the flat bed and the rotary. The flat bed machine is only used in special cases and mostly where very heavy work, such as leathers, etc. are being processed. In the decorative paper field the rotary embosser is the machine mostly used.

The roll type embosser may consist of either two, three or five rolls. The most of them are of the two roll type and they may be assembled with either a steel engraved roll and a paper roll sometimes called a bowl or in odd cases a steel roll having a smooth face is substituted for the paper roll. We only find the steel roll used with a smooth face where other than the general classification of light weight papers are being processed.

There is a large variety of embossed effects and the actual engraving is a very important part entering into a fine appearing product of any one classification with due reference to a correctly made paper roll and a correctly proportioned machine.

The engraving is usually done by first cutting the pattern wanted in a small tool similar to a knurl and called a "mill", proportioned so a predetermined number of its revolutions will exactly equal the circumference of the steel blank being engraved. This mill is placed in a special machine containing the steel blank to be engraved and is brought in contact with the steel blank with a uniform pressure applied. The two are allowed to rotate until the pattern engraved in the mill is duplicated on the steel blank and then this mill is moved along the face of the steel blank its width, and the operation repeated.

After the steel blank has been engraved it is necessary to use care in running the steel roll and the paper roll together until the impression has been worked into the surface of the paper unit. This is usually done by using extra care in controlling the amount of pressure applied, while the rolls are being run together and also slightly moistening the surface of the paper roll. The more time taken in running in the pattern the better the embossing will be in the finished product when completed.

Reputable manufacturers of embossing machinery supply printed instructions for the running in of paper rolls and when these instructions are carefully followed there is little danger of difficulties arising in the field.

In time the paper roll will wear down so the circumference of the steel roll is not a multiple of it and when this time arrives it is necessary to either turn down an engraved roll and re-engrave it and also turn down the paper roll so as to have its diameter a given repeat of the engraved roll or return the paper roll to the factory for refilling. Usually the latter procedure is followed, as the steel shaft, heads and locking devices are usually salvaged when making up a refill.

Surface Embossing

Where surface embossing is wanted, particularly in light weight papers, three roll embossing machines are usually found and in special cases where a very high grade artificial water mark is wanted, five roll embossers are used. The five roll machines usually consist of two smooth faced metal rolls, one metal engraved roll and two paper rolls. Some very high grade surface embossed effects are being produced on the five roll machines.

Up to recently, embossing machine speeds and the consequent production from same have been very limited, as the heat generated in the plain bearing machines is sufficient to retard the surface speed of the goods to from 60 to 100 and sometimes 125 lineal feet per minute. There are at the present time, high speed ball bearing machines on the market that are good for a surface speed of the goods ranging from 200 to 500 and 600 lineal feet per minute, and the power absorbed by these high speed machines is no greater than that absorbed by the plain bearing equipment.

In developing the high speed embossing machines it has been necessary to develop means of better unwinding and rewinding than was formerly found on the slow outfits. At the present time it is possible to purchase machines that will not only emboss, but also trim, slit and rewind on two or four drum winders, the same as is so well known in the paper mill machinery lines.

There is now coming forward very rapidly an embossed sheet that is ink printed in a single color at the same time it is embossed. This is accomplished by equipping the embossing machine with a printing attachment that inks the raised portion of the engraving on the steel roll and when the impression is made between the steel and paper rolls the ink is transferred to the depth of the embossing in the goods, so that we not only have an embossed effect as a surface, but we also have the design ink printed directly into the paper.

There are various types of inking distribution for various grades of papers and the effects desired.

Future of Light Weight Papers

The paper mill organizations are realizing today better than ever before the necessity of better grasping and understanding the problems of the converter and the market's demands. It is through such channels that they must look forward to future business.

There is a steady increase in demand for wall papers. This is due to two reasons. First, an increase in building operations calls for more paper hanging, and secondly, the multi-colored effects that may be produced on paper limits any impression the paint manufacturers may make in selling campaigns. It is interesting to note the increased demand for wall coverings do not keep step with new building programs, but lags behind a few years. Converted tissues and also some heavier stocks are today produced in such attractive effects they are rapidly taking the place of fabric articles. We have linen finished napkins and toweling that can be marketed for only a fractional part of the laundering costs of fabrics. The better the appearance and "feel" of the paper server the greater the demand is for it.

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Overproduction and the Anti-Trust Laws*

Robert S. Brookings, president of the Institute of Economics, Washington, D. C., prepared a memorandum, submitted to the President on November 14th, dealing with overproduction in relation to anti-trust, immigration and protective tariff laws of the United States. Mr. Brookings supports the anti-trust statutes on the ground that it is as necessary to protect the consumer against price-fixing as it could possibly be to relieve consumers from the burden of overproduction, and he points out that recent decisions on the anti-trust statutes have tended to enable producers to take precautions against overproduction. Mr. Brookings' memorandum says in part:

"The losses resulting from overproduction are enormous, but they are the price we pay for the maintenance of freedom. For obviously freedom cannot mean either that capital shall receive a return or that labor shall be paid a living and saving wage for rendering services which are already being rendered in abundance.

"Moreover, the pressure of overproduction is the great stimulus to efficiency. In the production of every commodity there is to be found every degree of efficiency, from the least to the greatest. When the supply is less than the demand, the least efficient producer is kept alive by a high price, and the most efficient profits so much as to put pressure upon increased production.

"This procedure naturally ends in overproduction and a price so low that the least efficient producer ceases to exist and the most efficient devotes his energies to increased efficiency in order to recoup his lessened profits. Increase in population, and higher standards of living in the course of time bring about a demand in excess of production once more, and the same cycle is repeated.

"The wide fluctuations which formerly came from this process have been greatly lessened in this country by the policies of big business, an outstanding example of which is the policy pursued by the United States Steel Corporation. Big business is interested first in stability, and avoids taking advantage of a short supply to secure an excess profit—a procedure which, they recognize, would simply bring increased competition into existence, and, in the last analysis, cost more than it would earn.

"It would be easy to prevent overproduction in many lines of business, if public policy permitted producers to combine to limit production. However, it is at least as important to protect consumers from extortion as it is to protect producers from the results of overproduction. Our Government has, therefore, by both the State and National anti-trust laws, insisted that no agreements between producers shall be made *which so limit supply as to make possible the extortion of an unfair value from the consumer.* It is difficult to draw the line between legitimate activities designed to prevent overproduction and those agreements which destroy equality of opportunity and aim at an unfair enhancement of price.

"Our earlier anti-trust legislation was very drastic and in some of its applications tended to prevent wholesome efforts at stabilization. We may mention two ways in which we have succeeded in introducing a more liberal policy without opening the door to exploitation of the consumer. The first relates to exports. By the passage of the Webb-Pomerene Act the Government has said that both agricultural and industrial interests may enter into combinations or agreements to sell their surplus products in foreign markets at any price they please.

"The second wholesome modification of the rigidity of our anti-trust laws relates to the exchange of information. The activities of the Departments of Agriculture and Commerce in collecting and publishing crop reports, and statistics of production, stocks, and sales, aid producers to adjust supply to demand without opening the door to extortionate restriction of output. The decisions of the Supreme Court in the maple flooring and cement cases which permit producers to exchange information, provided it is given also to the public, point in the same direction. Overproduction, due to ignorance and uncoordinated planning, is to be avoided, and supply is to be adjusted to demand. Production, however, is not to be curtailed by agreement with a view to exacting an unfair price.

"Farther than this we can hardly go in protecting either agriculture or industry from the risk of overproduction. Both the Webb-Pomerene Act and the program of extensive exchange of information are available for the benefit of agriculture as well as industry. Price fixing in the interest of the producer is subsidy to overproduction, which simply increases the evil and defeats the whole purpose of the anti-trust laws."

* From Law and Labor.

Canadian Concerns Prosper

At the respective annual shareholders' meetings a few days ago of the Victoria Paper and Twine Company, Ltd., the Garden City Paper Company, Ltd., and the Canadian Vegetable Parchment Company, Ltd., Leo F. Charles, managing director of all three companies, reported that, in the case of each company, the year 1927 had been very satisfactory. S. W. Ewing, Montreal manager, was elected vice-president of the Victoria Paper and Twine Company. The meeting of the Victoria Paper and Twine Company was preceded this year by an interesting and pleasant feature, when the directors of the company, in a body, visited Montreal, where they were the guests of Mr. Ewing, the local manager. A dinner in the evening at the Queen's Hotel concluded a very enjoyable and profitable day.

Making Labor Valuable*

Addressing the Michigan Manufacturers' Association on December 8, Virgil Jordan, Chief Economist of the National Industrial Conference Board, said that "unless prices should definitely take an upward trend, wages in the United States had probably reached a point of equilibrium and could not be expected to rise much higher without tending to increase the volume of unemployment."

Discussing the basis for the present wage level and the necessity for further expansion of business in order to maintain and increase the purchasing power of consumers, Mr. Jordan said:

"The high wage level in the United States is primarily due to three factors: First, the restriction of immigration, which has tended to eliminate a large labor reserve; higher standards of living among wage earners, which has tended to restrict the rapid increase of population; and third, the enormous volume of saving combined with an abundance of technical knowledge and business talent, which has created an intense competition among investors and enterprises, as well as producers of raw material, from all of which the wage earners in certain manufacturing industries have tended to benefit. The level of wages depends upon the relative abundance of labor, on the one hand, and of capital, technical skill, business talent and raw materials, on the other. Immigration restriction and new standards of living have created a relative scarcity of labor in comparison with capital, technical knowledge, business ability and raw materials. As a result, while the average hourly earnings of industrial wage earners are about 133 per cent higher than before the war, the average yield of high-grade industrial securities is today at, or somewhat below, the prewar level, men of technical training have difficulty in selling their knowledge at much above pre-war salary levels, the competition among the vast majority of small business concerns is ruinously intense, while the producers of raw material, from the farmers to the coal operators, are either losing money or making little more for their investment and labor than before the war. This process has gone so far that the expansion of industrial equipment and the useof labor saving devices displaced labor in many of the important industries. Though a portion of this labor may have found work in some of the newer subsidiary occupations, it is likely that the labor reserve has slowly tended to grow since the end of the war despite the enormous expansion in production and trade. Certainly employment in manufacturing industries has not only failed to keep pace with the growth of production but has actually declined.

Main Problem of Future Prosperity

"The main problem of future prosperity in the United States is that of expanding the domestic consumer purchasing power along with the expansion of production capacity. Employers have appreciated this problem in recent years, but they have tended to feel that high wages of themselves would solve it. Though the high wage policy has the strongest economic and social justification, it is not of itself a guarantee for permanent prosperity. For one thing, it is not wage levels themselves that determine consumer purchasing power, but the relation of wages to prices and to employment. Wages may remain stable or even decline while the purchasing power of the wage earning public is increased by falling prices or expanding employment. Prices can be reduced and employment increased, however, only if there is sufficient incentive for saving and business enterprise, in the form of good returns on investment and fair business profits. In the period since 1923 falling prices of manufactured products combined with rising prices of raw materials and high wages have tended to put a damper upon business enterprise, to penalize the inventor and to make prosperity in this country exceedingly uneven and not widely diffused. If it were not for a great abundance of savings competing for investment, combined with the favorbale speculative market for securities, sustained by easy credit conditions and federal conditions and federal reserve banking policies, it is possible that business conditions in the United States would have looked far less prosperous than they have. Practically speaking, labor has become a fixed charge upon American industry while profits and interest, as well as return to the producer of raw materials, has become a contingent charge—that is, they have had to take what they could get, which in some industries has been very little.

Business Expansion in the Future

"The expansion of businessin the future, therefore, will depend upon whether we can find some way of increasing consumer purchasing power in greater proportion than we increase wages or volume of production. The use of banking credit for instalment selling has done this in recent years, but the effect cannot be maintained without increasing the dose. The automobile industry has been a most important factor in expanding consumer purchasing power and, if the new Ford car is a success, it may continue to be so for some time to come. But, above all, this country needs some new incentive to business enterprise such as the automobile industry originally afforded and such as will lead to the creation of new industries as large and important as the automobile has been. Anything that will increase the agricultural purchasing power will make for business expansion in certain lines, although it may tend to cut business profits in others using agricultural raw materials, if wage levels remain high. Apart from such factors the most important influence for business exapnsion would be the use of our enormous credit resources for the building of public works and the increasing of highway and transporting facilities, all of which do not add directly or immediately to the volume of consumers goods in the market, while they do increase the general consumer purchasing power."

Mr. Jordan's statement is an unusually concise analysis of those conditions which both make the payment of high wages possible and force the payment of such wages. The strength of the wage level today is in the demand for labor and the supply, just as the comparative weakness in the wage level twenty-five years ago was in the demand and the supply. The elements which have tended to increase the demand, especially for skilled labor, is in the improvement of technique, the invention of new commodities and the creation of new demands among the people. These are the fruits of individual genius. The contributions of collective direct action in increasing the demand for labor are nil. In its contribution to the passage of the Immigration Restriction Law, the American Federation of Labor probably accomplished more for the advance of wages than it accomplished by all the strikes in its history.

Mr. Jordan shows clearly that the further improvement of the wages of the American workman depend upon the further success of business management, and the genius of inventors and business pioneers. Industrial warfare and dislocation can visit injury upon all. The prospect of profit to anyone therefrom is constantly decreasing.

* From Law and Labor.

Connecticut Valley Superintendents Meet

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., February 28, 1928.—The Connecticut Valley Division of the American Paper and Pulp Mills Superintendents' Association met Saturday at the Hotel Nonotuck in regular session. E. J. McDonnell of this city presided. The discussion was led by J. F. Sweetser of the Bird Machine Company of South Walpole. Plans were also discussed for the national convention to be held at Pittsfield May 31 and June 1 and 2.

Fire Prevention Costs*

It is essential in a study of the timber-growing possibilities of the region to draw a sharp line between the cost of preventing and controlling fires in active logging operations and the blanket cost of protecting forest land.

If the cost of the special patrol necessary during the life of the operation and the cost of suppressing fires caused by the operation or rendered unmanageable because of slash on the ground are included in the blanket cost of protection—that is, are spread evenly over the entire acreage protected—some very erroneous conclusions are likely to be drawn.

Not Brought Home to Men

In the first place, the actual money cost of improper slash disposal is not brought home to the men in charge of the woods operation. This leads to a practice of gambling with the slash menace in an attempt to get cheaper logs. If this cost is frankly recognized as a logging cost, the expense of proper slash disposal appears in a much better light. On the other hand, the swollen protection costs give a wrong idea of the cost of holding or growing timber and are responsible in no small degree for the doubt which exists in many quarters of the feasibility of growing white pine.

In considering past costs another fact deserves attention. The acreage protected by the associations has been some 50 per cent greater than the average contributing. In other words, the total cost has been spread over only two-thirds of the acreage. It is clear, therefore, that the past costs of the Idaho associations is not a fair criterion by which to judge the cost of growing future forests.

The cost of adequate patrol (exclusive of fire suppression) can be fairly closely estimated. Plans drawn up by three associations indicate a cost of about 6.5 cents an acre for patrol. The experience of the Forest Service for the past five years would indicate that 4 cents an acre should be enough to allow for fire suppression. Over a long period of years, during which as a result of improved methods of slash disposal the general fire danger should be expected to decrease, it would seem that 10 cents an acre should be a generous estimate of the cost of protecting the forest land.

Federal aid under the terms of the Clarke McNary Act of 1924 reduces the cost to the landowner at present about 1 cent an acre. It is contemplated that under this law the Federal Government will eventually bear about one-fourth of the total cost of production, which will bring the net cost to the owner down to about 7.5 cents. Since in practice the Federal funds are being concentrated as far as possible on cut-over land and areas of young growth, the cost for such lands may be still further reduced.

It may be expected that increased expenditure by the States will first take the form of investments in more thorough supervision and inspection as well as a more direct control of key men in the protective organization, and that it will not be reflected to any great extent in the patrol cost except in so far as the general efficiency of the protection work is increased.

More Thorough Supervision

No consideration is given in this discussion to the cost of the special precautions needed around logging operations. Beyond doubt the cost will be less in operations where slash is carefully piled and burned than where it has been burned by the broadcast method or has been allowed to accumulate for a year or two. This difference, if it could be calculated, would be an offset to the cost of piling slash.

Forest Service costs are also open to some objection as a basis for calculating costs on privately owned timberland, since many of the basic conditions are different from those on association areas. However, since 1919 the Forest Service objectives have been similar to those here proposed, and the results shown in the table will be in some measure indicative of what the expenses under the proposed plan may be.

Unit costs of fire control, and area burned; North Idaho national forests, 1920-1924.

NATIONAL FOREST	Average Annual Cost Per Acre: Patrol (1) Cents	Suppression Cents	Total Cents	Average Area Burned Annually: Per Cent
Kaniksu	4.14	7.28	11.42	0.53
Pen Oreille	3.43	3.60	7.03	.23
Clearwater	4.89	2.53	7.42	.35
Coeur d'Alene	5.43	2.99	8.42	.32
St. Joe	6.45	4.79	11.24	.54
Average	4.86	3.93	8.79	.38

(1) Including maintenance of improvements.

Corporations and the Income Tax

By Thos. J. Burke

On the authority of the Treasury Department, it can be stated that income tax returns filed during the calendar year 1925 showed a total net income of $31,000,000,000 on which the total income tax paid was about $1,900,000,000. The income and tax was split as follows:

	Net income	Tax
Individuals	70%	39%
Corporations	30%	61%
Total	100%	100%

These figures are eloquent. They speak for themselves. Corporations earned less than one-third of the total net income reported, but paid nearly two-thirds of the total tax assessed on this income. Other significant information is that of 430,027 corporations that filed tax returns during the calendar year 1925, more than 40 per cent, or to be exact, 177,693 *reported no net income*, so that the corporation income tax was paid by the remaining 60 per cent (252,334 corporations). Individuals paid an average tax of 3.36 per cent on their net incomes for the year, while corporations paid an average tax of 12.21 per cent.

The total *net* income reported by corporations for the previous year (1924) was $2,000,000,000 less than in 1925, while individuals reported about $4,000,000,000 more. That is to say, in 1924 corporations made less than 23 per cent of the total net income reported but paid 55 per cent of the total income tax paid.

It should be noted, in connection with the reduction of $4,000,000,000 in the net income of individuals reported in the years 1924 and 1925, that in the latter year through a change in the provisions of the statute the number of returns made by individuals was reduced by more than 3,000,000.

It is obvious from the above figures that corporations are being unfairly penalized. Every effort should be made, through representations to Congressmen and Senators, to bring about a reduction in the Corporation Income Tax Rate to at least 10 per cent. At present it seems to be assured it will be reduced to 11½ per cent, with some further concessions to small corporations. If any such concessions are to be made, it would seem as if the fairest and most equitable way would be to grade the tax proportionately to the net return made on the invested capital. Small corporations are often owned by a few shareholders, whereas large corporations always have a large number of small investors in their lists of shareholders, so why should small corporations be favored with higher exemptions?

A graded tax would certainly again bring up the question of "invested capital" with its attendant evils, but it may be presumed that the Income Tax Unit now has a better idea as to what constitutes a corporation's invested capital. In any event, this seems more equitable than setting arbitrary limits for higher exemptions as is now proposed.

Cost Section

* From Bulletin 1494, U. S. Dept. of Agriculture.

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING FEBRUARY 25, 1928

SUMMARY

Cigarette paper .....430 cs.
Wall paper .....133 bls., 8 cs.
Paper hangings .....129 bls., 81 cs.
Painted paper .....5 cs.
Tissue paper .....86 cs.
News print .....1,615 rolls, 96 bls.
Printing paper .....124 bls., 51 rolls, 145 cs.
Wrapping paper .....15 rolls, 48 cs.
Packing paper .....11 cs.
Colored paper .....5 cs.
Tracing paper .....15 cs.
Drawing paper .....18 cs.
Filter paper .....94 bls., 30 cs.
Baryta coated paper.....136 cs.
Gold coated paper .....3 cs.
Metal paper .....24 cs.
Surface coated paper .....118 cs.
Basic paper .....15 cs.
Transfer paper .....10 cs.
Decalcomania paper .....23 cs.
Pergamyn paper .....30 cs.
Photo paper .....3 cs.
Stencil paper .....56 cs.
Writing paper .....35 cs.
Cover paper .....7 cs.
Copy paper .....50 cs.
Vellum paper .....5 cs.
Straw pulp board .....34 rolls
Straw board .....842 rolls, 209 pkgs.
Miscellaneous paper .....9 bls., 25 pkgs., 249 cs.

CIGARETTE PAPER

De Manduit Paper Corp., Sarcoxie, Havre, 252 cs.
British American Tobacco Co., Paris, Havre, 10 cs.
Standard Products Corp., Paris, Havre, 60 cs.
P. J. Schweitzer, Pres. Harrison, Marseilles, 108 cs.

WALL PAPER

F. A. Binder, Muenchen, Bremen, 20 bls.
F. J. Emmerich, Hamburg, Hamburg, 45 bls.
Globe Shipping Co., Hamburg, Hamburg, 8 bls.
F. J. Emmerich, Minnetonka, London, 22 bls., 5 cs.
F. J. Emmerich, Celtic, Liverpool, 24 bls., 1 cs.
W. H. S. Lloyd & Co., Aurania, Liverpool, 10 bls., 2 cs.
A. C. Dodman, Jr., Inc., Olympic, Southampton, 4 bls.

PAPER HANGINGS

Whiting & Patterson Co., Inc., Minnetonka, London, 19 cs.
W. H. S. Lloyd & Co., Minnetonka, London, 44 bls., 21 cs.
A. C. Dodman, Jr., Inc., Aurania, Liverpool, 85 bls., 28 cs.
F. J. Emmerich, Paris, Havre, 1 cs.
Whiting & Patterson Co., Inc., Olympic, Southampton, 12 cs.

PAINTED PAPER

A. L. Diament & Co., De Grasse, Havre, 5 cs.

TISSUE PAPER

Old Master Pulp & Paper Co., Hamburg, Hamburg, 72 cs.
F. B. Vandegrift & Co., Aurania, Liverpool, 10 cs.
F. C. Strype, Aurania, Liverpool, 4 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Muenchen, Bremen, 492 rolls.
Perkins, Goodwin & Co., Muenchen, Bremen, 90 rolls.
H. Reeve Angel & Co., Inc., Sagoporack, Helsingfors, 289 rolls, 96 bls.
Parsons & Whittemore, Inc., Sparreholm, Hango, 182 rolls.
F. Henjes, Jr., Hamburg, Hamburg, 68 rolls.
Perkins, Goodwin & Co., Hamburg, Hamburg, 384 rolls.
Ossian Ray, Stockholm, Gothenburg, 110 rolls.

PRINTING PAPER

E. Dietzgen & Co., Breedyk, Rotterdam, 28 cs.
C. Steiner, Breedyk, Rotterdam, 10 cs.
Keuffel & Esser Co., Hamburg, Hamburg, 51 rolls, 3 cs.
J. Henschel & Co., Hamburg, Hamburg, 10 cs.
Perkins, Goodwin & Co., Hamburg, Hamburg, 124 bls.
Judson Freight Forwarding Co., Hamburg, Hamburg, 10 cs.
Dinglestedt & Co., Hamburg, Hamburg, 10 cs.
P. C. Zuhlke, Arabic, Antwerp, 74 cs.

WRAPPING PAPER

P. Maguire & Co., Inc., Arabic, Antwerp, 12 cs.
Birn & Wachenheim, Arabic, Antwerp, 6 cs.
F. C. Strype, Arabic, Antwerp, 15 rolls, 30 cs.

PACKIN GPAPER

Hensel, Bruckman & Lorbacher, Hamburg, Hamburg, 10 cs.
International Forwarding Co., Hamburg, Hamburg, 1 cs.

COLORED PAPER

S. Langsdorf Co., Hamburg, Hamburg, 5 cs.

TRACING PAPER

Keuffel & Esser Co., Hamburg, Hamburg, 15 cs.

DRAWING PAPER

Keuffel & Esser Co., Hamburg, Hamburg, 17 cs.
Kolesch Co., Olympic, Southampton, 1 cs.

FILTER PAPER

Taiyo Trading Co., Takaoka Maru, Nagoya, 1 cs.
C. Schleicher Schull Co., Hamburg, Hamburg, 3 cs.
H. Reeve Angel & Co., Inc Minnetonka, London, 94 bls., 26 cs.

BARYTA COATED PAPER

Globe Shipping Co., Muenchen, Bremen, 136 cs.

GOLD COATED PAPER

F. Murray Hill Co., Muenchen, Bremen, 3 cs.

METAL PAPER

Hensel, Bruckman & Lorbacher, Muenchen, Bremen, 22 cs.
Schmidt & Pritchard, Hamburg, Hamburg, 2 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Arabic, Antwerp, 53 cs.
Gevaert Co. of America, Arabic, Antwerp, 65 cs.

BASIC PAPER

American Express Co., Arabic, Antwerp, 15 cs.

TRANSFER PAPER

F. L. Kramer & Co., Muenchen, Bremen, 10 cs.

DECALCOMANIA PAPER

C. W. Sellers, Hamburg, Hamburg, 7 cs.
L. A. Consmiller, Hamburg, Hamburg, 16 cs.

PERGAMYN PAPER

E. V. Hadley, Hamburg, Hamburg, 10 cs.
F. C. Strype, Hamburg, Hamburg, 20 cs.

PHOTO PAPER

Medo Photo Supply Corp., Minnetonka, London, 3 cs.

STENCIL PAPER

Arlac Dry Stencil Corp., Hamburg, Hamburg, 56 cs.

COVER PAPER

International Forwarding Co., Hamburg, Hamburg, 7 cs.

WRITING PAPER

F. R. Lazarus, Sarcoxie, Havre, 2 cs.
Tiffany & Co., De Grasse, Havre, 6 cs.
F. L. Kramer & Co., American Merchant, London, 2 cs.
Guibout freres, Paris, Havre, 27 cs.

COPY PAPER

Whitfield Paper Works, Takaoka Maru, Kobe, 50 cs.

VELLUM PAPER

Steffens Jones Co., Hamburg Maru, Kobe, 5 cs.

STRAW PULP BOARD

J. P. Heffernan Paper Co., Breedyk, Rotterdam, 34 rolls.

STRAW BOARD

Edition Bookbinders, Breedyk, Rotterdam, 209 pkgs.
Perkins, Goodwin & Co., Breedyk, Rotterdam, 144 rolls.
Haas Bros., Breedyk, Rotterdam, 140 rolls.
A. Vuyk, Breedyk, Rotterdam, 558 rolls.

MISCELLANEOUS PAPER

International Forwarding Co., Breedyk, Rotterdam, 13 cs.
J. Richard & Co., Inc., Breedyk, Rotterdam, 4 cs.
Hensel, Bruckman & Lorbacher, Muenchen, Bremen, 7 cs.
R. Wilson Paper Corp., De Grasse, Havre, 3 cs.
Saentis, De Grasse, Havre, 2 cs.
Canson & Montgolfier, De Grasse, Havre, 18 cs.
Hensel, Bruckman & Lorbacher, De Grasse, Havre, 20 cs.
Standard Products Corp., De Grasse, Havre, 119 cs.
F. J. Emmerich, De Grasse, Havre, 25 pkgs.
A. L. Diament & Co., Paris, Havre, 1 cs.
Hensel, Bruckman & Lorbacher, Paris, Havre, 9 cs.
Coenca, Morrison & Co., Paris, Havre, 4 cs.
Keller Dorian Paper Co., Paris, Havre, 9 cs.
C. K. MacAlpine & Co., Stockholm, Gothenburg, 9 bls.
E. H. Sergeant & Co., Stockholm, Gothenburg, 1 cs.
Perkins, Goodwin & Co., Colombo, Genoa, 39 cs.

RAGS, BAGGINGS, ETC.

Equitable Trust Co., Anjer, Leghorn, 11 bls. rags.
G. Carrizzo, Anjer, Genoa, 228 bls. rags.
W. Schall & Co., Breedyk, Rotterdam, 221 bls. bagging.
Union Bank & Trust Co., Muenchen, Bremen, 77 bls. rags.
Mutnick Bros., Sarcoxie, Havre, 41 bls. rags.
Burnside & Cooper, Sarcoxie, Havre, 13 bls. thread waste.
P. J. Schweitzer, Sarcoxie, Havre, 28 bls. thread waste.
R. Wilson Paper Corp., Sarcoxie, Dunkirk, 90 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, Dunkirk, 42 bls. rags.
Salomon Bros. & Co., Sarcoxie, Dunkirk, 57 bls. rags.
Katzenstein & Keene, Inc., Sarcoxie, Dunkirk, 34 bls. rags.
American Over-Ocean Corp., Hamburg Maru, Kobe, 70 bls. rags.
Economy Wiping Material Co., Inc., Hamburg Maru, Kobe, 100 bls. rags.
Atlas Waste Manfg. Co., Hamburg Maru, Osaka, 100 bls. rags.
Atlas Waste Manfg. Co., Hamburg Maru, Kyoto, 60 bls. rags.
Castle & Overton, Inc., Hamburg Maru, Osaka, 20 bls. rags.
E. J. Keller Co., Inc., Innoko, Rotterdam, 128 bls. bagging.
State Bank, Innoko, Rotterdam, 255 bls. cotton waste.
J. Cohen Son, Inc., American Merchant, London, 15 bls. rags.
Mutnick Bros., Aurania, Liverpool, 14 bls. rags.
E. J. Keller Co., Inc., Bellflower, Manchester, 140 bls. bagging.
R. F. Downing & Co., Bellflower, Manchester, 148 bls. paper stock.
Royal Manfg. Co., Bellflower, Manchester, 71 bls. cotton waste.
Castle & Overton, Inc., Bellflower, Manchester, 82 bls. bagging.
American Exchange Irving Trust Co., Kifuku Maru, Hamburg, 99 bls. rags.
Chemical National Bank, Kifuku Maru, Hamburg, 137 bls. rags.
Mutnick Bros., Celtic, Liverpool, 19 bls. rags.
J. Cohen Son & Co., Inc., Celtic, Liverpool, 19 bls. rags.
E. Butterworth & Co., Inc., Celtic, Liverpool, 55 bls. bagging.
C. B. Richard & Co., Savoia, Naples, 126 bls. rags.
C. B. Richard & Co., Savaia, Leghorn, 92 bls. rags.
E. J. Keller Co., Inc., Oklahoma, Havre, 56 bls. rags.

OLD ROPE

E. J. Keller Co., Inc., Sarcoxie, Havre, 38 bls.
E. J. Keller Co., Inc., Sarcoxie, Dunkirk, 19 bls.
W. Steck & Co., Sarcoxie, Havre, 173 bls.

CASEIN

Atterbury Bros., Inc., Hororata, Port Chalmers, 700 bags, 112,000 lbs.
Chemical National Bank, Olympic, Southampton, 120 bags.

CHINA CLAY

J. Lee Smith & Co., Boston City, Bristol, 40 casks.
C. T. Wilson & Co., Boston City, Bristol, 25 casks.
C. B. Richard & Co., Boston City, Bristol, 50 casks.
J. Dixon Crucible Co., Hamburg, Hamburg, 404 bags.

WOOD PULP

American Exchange Irving Trust Co., Saturnia, Trieste, 294 bls. wood pulp.
J. Anderson & Co., Saturnia, Trieste, 680 bls. wood pulp.
Atterbury Bros., Inc., Tyrifjord, Oslo, 500 bls. wood pulp.
E. J. Keller Co., Inc., Muenchen, Bremen, 700 bls. wood pulp.
J. Anderson & Co., Sagoporack, Sarpsborg, 1,080 bls. sulphite, 180 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 336 bls. sulphate, 56 tons.
Buck, Kiaer & Co., Inc., Sparreholm, Stockholm, 900 bls. chemical pulp.

(Continued on page 72)

SUPERIOR

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DRY & PULP COLORS

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Paper Makers Chemical Co.—Easton, Pa., Holyoke, Mass.
Western Paper Makers Chemical Co.—Kalamazoo, Mich., Pensacola, Fla., Jacksonville, Fla., Savannah, Ga., Comstock, Mich.
C. K. Williams & Company, Easton, Pa.
Georgia-Louisiana Company, East Point, Ga., Marrero, La.
Superior Pine Products Company, Fargo, Ga., Tarver, Ga.
Empire Size & Chemical Co., Albany, N. Y.
Adirondack Mineral Co., Carthage, N. Y.
Superior Sizing Company, Lockport, N. Y.
Paper Makers Importing Co., Easton, Pa., St. Austell, Cornwall, Eng.
Vera Chemical Co. of Canada, Ltd., Freeman, Ontario.
Vera Chemical Corporation, Stoneham, Mass.
Vera Chemical Company, North Milwaukee, Wis.
John Regnier & Son Company, Boston, Mass.
George S. Mepham Company, East St. Louis, Mo.
Pochins & Paper Makers Chemicals, Ltd., Erith, Kent and Manchester, Eng.

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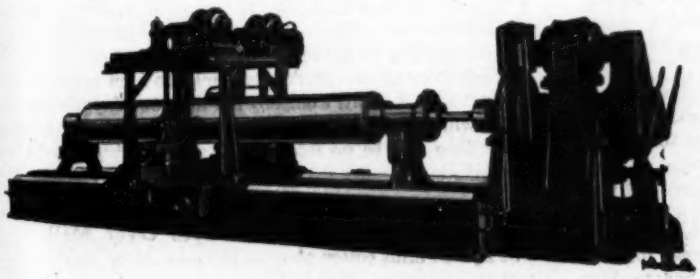

A new model with enclosed geared driving head and full automatic lubrication including the Vs. and the feed-screw.

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The automatic crowning device and the provision for leveling the bed are exclusive features of the Lobdell Roll Grinders.

LOBDELL CAR WHEEL COMPANY

Established 1836

WILMINGTON, DELAWARE

Imports of Paper and Paper Stock

(*Continued from page 70*)

Buck, Kiaer & Co., Inc., Sparreholm, Stockholm, 300 bls. sulphite.
Lagerloef Trading Co., Sparreholm, Helsingfors, 612 bls. wood pulp.
Castle & Overton, Inc., Hamburg, Hamburg, 174 bls. wood pulp, 26 tons.
Bulkley, Dunton & Co., Hamburg, ——, 125 bls. wood pulp, 25 tons.
E. M. Sergeant & Co., Stockholm, Gothenburg, 175 bls. sulphite.
Parsons & Whittemore, Inc., Cleveland, ——, 180 bls. wood pulp.
Parsons & Whittemore, Inc., Cleveland, ——, 167 bls. wood pulp.
Parsons & Whittemore, Inc., Cleveland, ——, 130 bls. wood pulp.
Parsons & Whittemore, Inc., Cleveland, ——, 260 bls. wood pulp.
Parsons & Whittemore, Inc., Cleveland, ——, 260 bls. wood pulp.

WOOD FLOUR

B. L. Soberski, Tyrifjord, Frederickstad, 1,500 bags.
A. Kramer & Co., Breedyk, Rotterdam, 500 bags.
The Burnet Co., Stockholm, Gothenburg, 678 bags.

PHILADELPHIA IMPORTS

WEEK ENDING FEBRUARY 25, 1928

S. Birkenstein & Son, Anjer, Valencia, 374 bls. rags.
Stephano Bros., Sarcoxie, Havre, 23 cs. cigarette paper.
Robert Blank, Sarcoxie, Havre, 135 bls. rags.
Castle & Overton, Inc., Sarcoxie, Havre, 188 bls. rags.
J. M. Jaffe, Sarcoxie, Havre, 20 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, Havre, 31 bls. rags.
M. Friedman, Sarcoxie, Havre, 36 bls. rags.
J. M. Hagy Waste Works, Sarcoxie, Havre, 47 bls. rags.
V. Galaup, Sarcoxie, Havre, 266 bls. rags.
A. Hurst & Co., Sarcoxie, Havre, 112 bls. rags.
Castle & Overton, Inc., Sarcoxie, Dunkirk, 219 bls. rags.
E. J. Keller Co., Inc., Sarcoxie, Dunkirk, 59 bls. bagging.
Lagerloef Trading Co., Sagoporack, Helsingfors, 3,050 bls. wood pulp, 610 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 180 bls. sulphite, 30 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 672 bls. sulphate, 112 tons.
Castle & Overton, Inc., Hamburg Maru, Osaka, 390 bls. rags.
Phila. Girard Natl. Bank, Hamburg Maru, Kyoto, 50 bls. rags.
Castle & Overton, Inc., Boston City, Bristol, 126 bls. rags.
National City Bank, Boston City, Bristol, 262 bls. waste paper.
G. M. Graves Co., Inc., Innoko, Rotterdam, 44 bls. rags.
E. J. Keller Co., Inc., Innoko, Rotterdam, 66 bls. old rope.
Green, Hamilton & Co., Innoko, Rotterdam, 78 bls. thread waste.
New England Waste Co., Innoko, Rotterdam, 89 bls. rags.
National Waste Co., Innoko, Rotterdam, 30 bls. rags.
American Cotton Waste Co., Innoko, Rotterdam, 21 bls. wipers.
S. E. Ingber, Innoko, Rotterdam, 297 bls. rags.
American Exchange Irving Trust Co., Clontarf, Marseilles, 102 bls. old rope.
Chase National Bank, Savoia, Naples, 113 bls. rags.
New York Trust Co., Savoia, Genoa, 194 coils old rope.
Castle & Overton, Inc., Baltimore Maru, Japan, 40 bls. rags.
E. J. Keller Co., Inc., Binnendyk, Amsterdam, 498 bls. rags.
E. J. Keller Co., Inc., City of St. Joseph, ——, 467 bls. rags.
E. J. Keller Co., Inc., City of Flint, Leith, 59 bls. rags.

PORTLAND IMPORTS

WEEK ENDING FEBRUARY 25, 1928

Waterfalls Paper Mills, Sagoporack, Sarpsborg, 3,736 bls. sulphite, 622 tons.
The Borregaard Co., Inc., Sagoporack, Sarpsborg, 2,388 bls. sulphate, 398 tons.
Parsons & Whittemore, Inc., West Campgaw, ——, 270 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING FEBRUARY 25, 1928

G. M. Graves Co., Inc., Innoko, Rotterdam, 131 bls. rags.
E. J. Keller Co., Inc., Innoko, Rotterdam, 61 bls. rags.
Green, Hamilton & Co., Innoko, Rotterdam, 71 bls. cotton waste.
C. H. Powell, Innoko, Rotterdam, 166 rolls straw board.
Lazarus & Co., Takaoka Maru, Osaka, 100 bls. thread waste.

NEW ORLEANS IMPORTS

WEEK ENDING FEBRUARY 25, 1928

Castle & Overton, Inc., Gand, France, 356 bls. rags.
Castle & Overton, Inc., Brave Coeur, Germany, 98 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING FEBRUARY 25, 1928

National City Bank, Clontarf, Genoa, 142 bls. rags.
Castle & Overton, Inc., Kearney, Great Britain, 112 bls. bagging.
Castle & Overton, Inc., Bochum, Germany, 2,555 bls. wood pulp.
E. J. Keller Co., Inc., Binnendyk, Karlsruhe, 600 bls. wood pulp.
E. J. Keller Co., Inc., Seydlitz, Bremen, 351 bls. wood pulp.
Woodpulp Service Corp., Wytheville, Hamburg, 2,255 bls. wood pulp.

J. C. Murray Speaks on Reforestation

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., February 27, 1928.—John C. Murray, who is regarded in the Northern New York paper industry as an expert on pulpwood, gave an interesting talk on wood and the papermaking industry before the Carthage Rotary Club. Mr. Murray emphasized the need of reforestation saying that when the supply of wood was sufficient the paper industry of Northern New York would experience a revival.

He displayed a number of samples of two kinds of spruce, fir and other wood, which he used in illustrating his talk. He said that experiments are under way constantly by experts for the reproduction of the different varieties of trees, the same as in plant life, and from the research work many new varieties of trees may be developed. It has been found, he said, that trees grow larger in diameter in moisture or moist places.

Mr. Murray read an article from the PAPER TRADE JOURNAL which described in detail his ideas in regard to the papermaking industry as it is today.

Start Work on New Gummed Paper Plant

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, February 28, 1928.—Already remodeling work on the old Hayner Distillery Company's plant in Troy has been started by the Brown-Bridge Mills, Inc., manufacturers of gummed paper and cloth. This is Troy's latest industry, which has been capitalized at $200,000. Troy and Middletown men are backing the enterprise which promises to become one of the leading mills of the thriving Miami county capital.

A force of men is at work rearranging the interior of the concrete structure, which will be used for the manufacturing plant of the new concern and preparations are being made for placing a new roof on the building. Substantial repairs also are being made to the other buildings constituting the former distillery, and which will be utilized for storage and shipping purposes in connection with the gummed paper business. The steam plant, which occupies a separate building, also will be rebuilt. The boiler in the brick building is being overhauled and will be used to furnish heat for two structures.

A quantity of new machinery is being purchased for the paper plant and delivery is expected within the next two or three weeks, P. H. Bridge, one of the incorporators, stated.

The first floor of the concrete building has been used for storage by the Advance Aircraft Company but this company now is moving out and will secure other quarters for its motors and plane parts, so that there will be no interference with the installation of the new machinery for the Brown-Bridge Mills, Inc.

Whiting Paper Co. Takes Over Mill

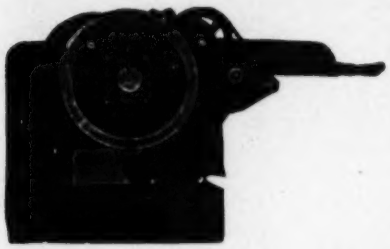
The Lyman Mills cotton plant at Holyoke, Mass., has passed into complete possession of the Whiting Paper Company. The new owners have started contractors at work in the fine goods division preparing for installation of two paper making machines and necessary complementary machinery. The textile machinery has been sold to Fyans, Fraser & Blackway of Fall River for shipment as part of $1,500,000 of textile equipment to be sent to Alabama from New England this year.

Mrs. Hugh P. Baker Passes Away

Fleta Paddock Baker, wife of Dr. Hugh P. Baker, former secretary of the American Paper and Pulp Association, died suddenly last Friday at the Flower Hospital, New York, after a short illness. Besides her husband, Mrs. Baker is survived by a son, Clarence, and a daughter, Carolyn. The PAPER TRADE JOURNAL joins the many friends of Dr. Baker in the paper industry, in extending its deepest sympathy to him in his great loss.

GIANT

RAG CUTTERS



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Portland is also an ideal place to live. It has a mild climate, good water and plenty of nice hotels, apartment houses and homes. Also good schools, theaters, libraries, clubs and parks.

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Extra Days of Fine SERVICE out of your FELTS

At best felt bills run high in any mill. All the more reason for adopting a felt that has built into it a few more days of service than it is possible to get out of other makes.

Think what a few extra days of service out of each felt would mean in the course of a year—how deep a dent it would make in the year's felt bill!

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Not only that—Orr Felts have the reputation for taking a maximum of water out FASTER than any other felt—and have had that reputation for more years than most of us care to look back.

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Piqua, Ohio

ORR FELTS

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, February 29, 1928.

Business in the local paper market was quite active during the past week due to some extent to the opportunities to get together afforded by the convention. Practically all the different grades of paper were in persistent request and there are signs of even greater activity now that the spring campaign is beginning. Prices are holding up to schedule, in most instances, and shading is infrequent.

Demand for news print paper is normal for the time of the year. Production, both in Canada and the United States, is being keyed to take care of the prevailing consumption. The spot market continues moderately active. Prices are generally holding up to the previously reported levels and there is not much talk of concessions.

The paper board market is still in a strong position. Box board is in excellent request and quotations are steady to firm. Some improvement has been noticed in the fine paper market and tissues are beginning to move more freely. The coarse paper market is exhibiting a sound undertone and wrapping paper is in seasonal demand.

Mechanical Pulp

No radical changes have been recorded in the ground wood market of late. While the production of imported mechanical pulp is still restricted, accumulations are apparently sufficient to take care of current requirements. Prices of both domestic and imported ground wood are practically unaltered.

Chemical Pulp

With the lockout in the Swedish mills still in force, the chemical pulp market is decidedly firmer. Inquiries for future needs are being received in increased volume and should the labor conflict last much longer further advanced quotations may be expected. Imported easy bleaching sulphite is now being quoted at from $2.65 to $2.90. Domestic bleached sulphite is selling at from $3.30 to $4.75.

Old Rope and Bagging

Greater interest is being evinced by the paper mills in the various grades of old rope and bagging. An improved market is confidently anticipated in the near future. Supplies are about sufficient to cover immediate demands and are moving into consumption at a normal rate. Prices remain steady and unchanged.

Rags

Little change has transpired in the rag market of late. A fairly satisfactory amount of business was transacted during the week in the lower and medium grades of domestic rags. Prices are being maintained at the previously reported levels. The foreign rag market is still rather quiet, due to conditions abroad.

Waste Paper

The feature of the paper stock market during the past week was the stronger demand for book and magazine stock. Supplies of these grades are somewhat limited and prices have advanced accordingly. Solid flat book stock is now being offered at from $1.50 to $1.55 and overissue magazine is selling at from $1.55 to $1.60.

Twine

Due to the improved request for wrapping paper for spring and Easter requirements the twine market is exhibiting a stronger tendency and quotations are holding up to formerly quoted levels in a satisfactory manner. Improved conditions are generally anticipated for the next few weeks, at least.

Hudson River Power Projects

Within the next two or three years power development projects costing millions of dollars will be under way in the Upper Hudson Valley with pulp and paper concerns the greatest beneficiaries. The completion of the dam at Conklingville, N. Y., will be the signal for the start of work on several projects.

There is no longer any doubt that the plans for regulating the flow of the Hudson River will be carried to completion. The contract for the construction of the dam was awarded early in January and a force of several hundred men is now engaged in clearing the site. The contract for the dam calls for its completion late in 1929. Pulp and paper concerns of the Upper Hudson Valley are paying about 90 per cent of the total cost of the project estimated at $9,000,000.

Edward H. Sargent, chief engineer of the Board of the Hudson River Regulating District, in an address before the local Chamber of Commerce declared that four large power projects will follow construction of the dam. The major projects he enumerated as a power house at Conklingville, a development at Stewarts Bridge, a large dam and power plant at Luzerne and re-development at Palmers Falls which will make the falls "second only to Niagara." He said that re-development of power plants are expected within three years at Sherman Island, Glens Falls, Hudson Falls and Fort Edward. Pulp and paper concerns interested in these projects are the International Paper Company, Union Bag and Paper Corporation, and Finch, Pruyn & Co.

The Palmer Falls power site is controlled by the International Paper Company and now furnishes operating power for the Hudson River Mill and the Curtis Pulp Mill. The International Paper Company also owns the Sherman Island plant, the Fort Edward power site, and owns a one-third interest in the Feeder Dam plant at Glens Falls. The power developments planned by the International Paper Company in the Upper Hudson Valley will make the firm an important factor in the hydro-electrical industry. According to Mr. Sargent, the development at Palmer Falls will produce a drop of 115 feet and will provide more than 100,000 horsepower.

The International Paper Company now sells the surplus power of its power plants to the New York Power and Light Corporation. This company operates under a lease the Sherman Island plant and with Finch, Pruyn & Co. and the International Paper Company owns the Feeder Dam power plant, Glens Falls, in equal shares.

The development at Hudson Falls will probably be started during the coming summer by the Union Bag and Paper Corporation, which plans to expend approximately $4,000,000 for additional dams and a new power station.

New England Paper Men to Meet

The March meeting of the New England Paper Merchants Association is to be held on Friday, March 9, at the Harvard Club of Boston, when the new officers will begin their work.

SOME PAPER MILL USERS OF
Badenhausen Boilers
Superheaters :: Preheaters

Geo. F. Hardy, Consulting Engineer, New York
For Southern Paper Co., two orders, total 4700 H.P.
For St. Croix Paper Co. ..... 1200 H.P.
For Brown Paper Mill Co. ..... 3430 H.P.
Central Paper Co., Muskegon, Mich., four orders, total ..... 3100 H.P.
Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total ..... 4750 H.P.
Ontario Paper Co., Ltd.
For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Willamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total ..... 920 H.P.
Kleckhefer Container Co., Delair, N. J. ..... 1800 H.P.

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English Weave—Fine Face Felt in Three, Four, Five and Six Ply—60" to 214" in width—insure large production. Absolutely no felt marks in paper.

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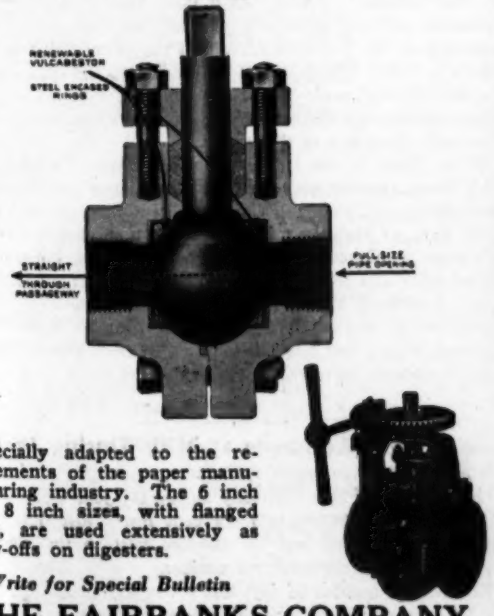

Especially adapted to the requirements of the paper manufacturing industry. The 6 inch and 8 inch sizes, with flanged ends, are used extensively as blow-offs on digesters.

Write for Special Bulletin

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Factory: Binghamton, N. Y.
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Maintains your high standards of quality papers

ALPHA FIBRE
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Alpha Fibre's exceptionally high cellulose content imparts to papers those outstanding qualities which previously were obtainable only through the use of good rags.

Paper hitherto made without rag stock, can be brought to the high quality goal by the use of Alpha Fibre.

WRITE FOR PARTICULARS

BROWN COMPANY
founded 1852
PORTLAND, MAINE
PULP SALES DIVISION

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL
Wednesday, February 29, 1928.

Demand for paper making chemicals is persistent and steadiness continues to prevail in the local chemical market. Contract shipments continue to move at a satisfactory rate. Inquiries for future requirements are numerous and the outlook is quite encouraging. Prices are holding up to schedule without difficulty, in most instances.

BLANC FIXE.—The tone of the blanc fixe market is practically unchanged. Most of the business transacted during the past week was along routine lines. Contract shipments are proceeding in a normal manner. The pulp is still quoted at $60 per ton, in bulk, and the powder is offered at from 4 cents to 4¼ cents a pound, in barrels, at works.

BLEACHING POWDER.—No radical changes were recorded in the bleaching powder market. Supplies continue to move into consumption in excellent volume. Prices are being maintained at former levels. Bleaching powder is selling at from $2 to $2.35 per 100 pounds, in large drums, at works, according to quantity and size of contract.

CASEIN.—Offerings of both domestic and imported casein are about sufficient to cope with immediate requirements. Prices remain steady and unchanged. Imported casein is now quoted at from 18 cents to 18½ cents per pound, in bags, car lots, while domestic casein is selling at from 17 cents to 18½ cents per pound.

CAUSTIC SODA.—Production of caustic soda is proceeding along normal lines and there are no undue accumulations. Prices remain unaltered. Solid caustic soda is offered at from $2.90 to $2.95 per 100 pounds. The flake and the ground are quoted at from $3.30 to $3.35 per 100 pounds, in large drums at works.

CHINA CLAY.—Most of the business transacted in the china clay market during the week was along routine lines. The movement against contract is being well maintained and prices are holding up to schedule. Imported china clay is quoted at from $15 to $25 a ton, in bulk, ship side. Domestic paper maker's clay is selling at from $8 to $9 a ton, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—Steadiness prevails in the chlorine market. Contract withdrawals continue to move at a normal pace. Prices remain unchanged from the recently reported basis. Chlorine is quoted at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents a pound.

ROSIN.—Some improvement was experienced in the rosin market during the week. Demand was more active and prices were much steadier. At the naval stores, the grades of gum rosin used in the paper mills are now selling at from $9.45 to $9.85 per 280 pounds, ex dock, in barrels. Wood rosin is quoted at $7 per 280 pounds, southern shipping points.

SALT CAKE.—The salt cake market is in a sound position and most of the manufacturers are reported to be well sold ahead. Stocks in hand are rather limited. Prices remain unaltered. Salt cake is still selling at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is offered at from $14 to $15 a ton, in bulk, at works.

STARCH.—Mill demand for starch is persistent and prices are much firmer. Supplies are moving into consumption in excellent volume. Production is proceeding at a normal pace. The quotation on special paper maker's starch has been advanced to $3.57 per 100 pounds, in bags, and $3.74 per 100 pounds, in barrels.

SODA ASH.—Production of soda ash has been fairly heavy of late, but most of the output has been taken up on contract and no great amount of surplus stock has accumulated. Trading in the spot market shows signs of improvement. Contract quotations on soda ash, in car lots, at works, rule as follows: in bags, $1.32½, and in barrels, $1.55.

SULPHATE OF ALUMINA.—Contract withdrawals of sulphate of alumina continue to go forward in a normal manner. The amount of new business reported during the week was satisfactory for the time of the year. Commercial grades of sulphate of alumina are selling at from $1.40 to $1.45 per 100 pounds, in bags, at works. The iron free is offered at from $2 to $2.05 per 100 pounds in bags at works.

SULPHUR.—The undertone of the sulphur market is sound. Demand for this product continues along broad lines. Shipments against contract are well up to the average for the season. Prices remain unchanged. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine, according to quantity. The spot quotation is $20 a ton.

TALC.—Little change has transpired in the talc market for some considerable time and prices are unchanged from the recently quoted levels. Shipments against contract continue to move in a regular manner. Domestic talc is still selling at from $16 to $18 a ton at eastern mines, while French talc is quoted at from $18 to $22 a ton, in bags, ship side.

News of the Boston Paper Trade

BOSTON, Mass, February 27, 1928.—The Fort Hill Paper Company has become distributor for the Rain-Pak raincoat and hat cover in Massachusetts, Maine, New Hampshire and Vermont. These garments, which retail at 25 cents, are made of wax paper, and are guaranteed to withstand 24 hours of continual rain. The coat can be worn over winter coat, wraps or furs. They can be quickly unfolded and donned and after use can be refolded into a package about 7 inches long, 4 inches wide, and 3 thick. The coat and hat cover may be used for either masculine or feminine attire. The company has interested many in this novelty.

The Charles A. Esty Paper Company, which distributes Dejonge Coated Paper in New England, has mailed to the trade an up-to-date Dejonge price list together with a letter, emphasizing the new lines, Deco Gloss and Deco Mat. These papers are made in White and Ivory. Sample sheets are now available and a sample book is being made. Deco Grade was thoroughly tested before being added to the regular stock lines. It has a neutral, all casein sized coating on a body stock of good strength.

The current issue of "How," house organ of Tileston & Hollingsworth Company, edited by A. V. Howland, is devoted largely to discussions and analyses of the 1928 Calendar. The Barnstormers of Tileston & Hollingsworth, including the Crinoline Girls of Old-Fashioned Quality, have been appearing before various audiences and are scheduled to entertain with melodeons at a gathering of the Simmons Alumni at the Hotel Bellevue, this city, March 1, 1928. The company has mailed to the trade samples of Franklin Bristol, made by the Franklin Paper Company, Holyoke, Mass., announcing the new White which will supersede the shade previously furnished in this grade.

M. A. Park, of the Holyoke Card & Paper Company, Springfield, Mass., recently addressed the John Carter salesmen, speaking particularly of Argonaut Cover, a new line of that company. C. H. Barr, of Holyoke, Mass., was also a speaker at the meeting.

George W. Ernest, of the Jessup and Moore Paper Company, Philadelphia and New York; Norman Harrower, of Linton Bros. & Co., Fitchburg, Mass.; Fred Perry, of the Coy Paper Company, Claremont, N. H.; Mr. Wheeler, of the Franklin Paper Company, Holyoke, Mass.; and Kendall Wyman, of the Falulah Paper Company, Fitchburg, were recent visitors to the trade.

C. Frederic Wellington.

Fewer Accidents at Mills During 1927

While there were seven per cent more employees in the mills of International Paper Company during the year 1927 than during 1926, there were twenty-two per cent fewer lost time accidents. The accident record was by far the best in the eleven years covered by the records of the company.

The average number of days lost by employees through accidents, per 100 men employed, was thirty-four per cent less in 1927 than during either the previous year—1926—or 1925. The company maintains a department of safety which is directly responsible for the prevention of accidents through the protection of machinery.

Clay

300 tons daily

AMERICAN MADE FOR AMERICAN TRADE

AT LAST!!

"An American Coating Clay"

***H. T. Brand Coating Clay*, Highest Grade Filling Clay, being used in some of the largest paper mills in the country. Send for samples and article on *"An American Coating Clay."* Forty-two years experience in American washed clays are back of this product.**

Let us submit sample and quote you.

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50 Church St.,
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YOUR BELTING *joined with* **CRESCENT BELT FASTENERS** *stays joined!*

Crescents are on in a jiffy and on to stay—yet to shorten a Crescent joined belt is but a matter of a few minutes.

But the big advantage is that the belt will give its best service for its longest life without constant costly interruptions.

Crescent Belt Fastener Co.
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CRESCENT BELT FASTENERS

Recommended by belting manufacturers as the best.

RHOADS TANNATE WATERSHED LEATHER BELTING

WHY TANNATE IS ECONOMICAL

ONE paper man ordering a $1,000 Tannate Belt offered as his reason the fact that he felt it would last longer than rubber or oak belting. And added, "If the plant is stopped for two or three hours it will cost us $1,000 and disorganize the whole place."

Stops for shortening or the replacement of belts can be expensive. The saving of a few such stops may go a long way toward paying for a Rhoads Tannate Watershed Belt.

Add to this saving the results obtained from the stronger grip of Tannate and you may see why so much Tannate Watershed Belting is going into paper mills.

With Tannate Belting you buy Rhoads Guaranteed Belt service. May we send you our Tannate Booklet giving the Rhoads Service Guarantee?

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are rapidly expanding, so we are improving our facilities, and are prepared to ship promptly in Tank Cars, Multi-Unit Tank Cars (1-ton containers), or Cylinders (150 lbs. or 100 lbs.) from either Philadelphia, Pa., Wyandotte, Mich., or Menominee, Mich., and very soon from our new plant at Tacoma, Wash.

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Works:
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Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	80	82
Bastrap Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Bedford Pulp & Paper, 6½s 1942	98½	None
Brown Paper Co., 1st 5½s 1946	96½	99
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper, 7s 1933	85	None
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	100	102
Donnaconna Paper, 6s 1940	101	102½
Della Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	101	103
Escanaba Paper Serial, 6s 1928	99¾	...
Filer Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	99	102
Fox River Paper, 7s 1931	99	...
Gair Company, 5½s 1942	96	99
Gilbert Paper Co., 6½s 1926-29	91	None
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	99	101
Itaska Paper, 1st 6s 1933-38	99	101
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	100	103
Menasha Printing & Carton, 6½s 1939	99½	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
River Raisin Paper, 6s 1936	96	...
Spanish River Pulp & Paper, 8s 1941	108	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	99	101
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	99½	101
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	95	97
Ticonderoga Pulp & Paper, 5s 1930	94	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	91	...
Whitaker Paper, 7s 1942	106	108

STOCKS	BID	ASKED
American Box Board, Pfd.	8	10
American Box Board, Com.	8	10
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P., Pfd.	54	58
Brompton Pulp & Paper, 8% Pfd.	100	102
Brown Corpn., 7% Pfd.	100	104
Champion Fibre, 7% Pfd.	106	112
Diem & Wing, 7% Cum. Pfd.	90	...
Eastern Mfg. Co., 1st Pfd.	28	33
Great Northern Paper, Com.	70	75
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	160	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	94	98
Midwest Box Co., Pfd. 6%	92	97
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	160	170
Oxford Paper Co., Pfd.	105	108
Penobscot Chemical Fibre, Com.	65	75*
Richardson, 7% Pfd.	160	...
Rubberoid	74	77
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	104½
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com	50	55
West Virginia Pulp & Paper, Pfd	101	103
Whittaker Paper, 7% Cum. Pfd.	98	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.50	@ 4.75
Southern	4.25	@ 4.50
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	47.50	@50.00
Straw	53.50	@57.50
Chip	45.00	@47.50
Binders' Boards	70.00	@75.00
Sgl. Mla. Ll. Chip	57.50	@60.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	28.00	@30.00
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.40	@ 4.25
Easy Bleaching	2.65	@ 2.90
No. 1 strong unbleached	2.50	@ 2.65
Mitscherlich unbleached	2.60	@ 3.25
No. 2 strong unbleached	2.30	@ 2.40
No. 1 Kraft	2.55	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.65	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.30	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.70
Kraft (Domestic)	2.60	@ 3.30
Soda Bleached	3.25	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.75	@12.25
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.50	@ 1.60
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
New Mixed Cuttings	3.00	@ 3.50
New Dark Cuttings	2.75	@ 3.25
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.60	@ 1.65
Shoppery	1.55	@ 1.60
French Blues	2.25	@ 2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.65	@ 1.75
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.00	@ 3.10
Domestic	3.75	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.40	@ 3.65
Hard, White, No. 2	2.90	@ 3.05
Soft, White, No. 1	2.75	@ 2.90
Flat Stock—		
Stitchless	1.55	@ 1.60
Overissue Mag.	1.55	@ 1.60
Solid Flat Book	1.50	@ 1.55
Crumpled No. 1	1.10	@ 1.15
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.65
Extra No. 1 old	1.25	@ 1.35
Print	.85	@ .95
Container	.70	@ .80
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.95	@ 2.05
News—		
No. 1 White News	1.70	@ 1.80
Strictly Overissue	.80	@ .90
Strictly Folded	.55	@ .60
No. 1 Mixed Paper	.45	@ .50
Common paper	.30	@ .35

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EAGLE KNIFE & BAR WORKS

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The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

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UNION SCREEN PLATE CO.

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE SCREEN PLATES
(Best phosphorized Cast Metal)
Old Plates RECLOSED and RECUT to accurate gauge
UNION BRONZE SCREWS for Screen Plates
Rolled Copper and Bronze Screen Plates for Rotary Screens
Sole Manufacturers of the
Union-Witham Screen Plate Vat and Fastener

THE PULP BUYER

WILL TELL YOU WHY

Fidalgo System Dried and Shredded Pulp

(Air Dried)

IS THE ANSWER

Units 10 to 75 ton daily capacity
Producing a compact air dry bale (suitable rail and water shipment 40-45 cu. ft. per ton) of *shredded* pulp.
Higher test than when dried on cylinder machines.

LARGE SAVING AT BEATER

GENERAL ADVANTAGES

No Mechanical Pressure used until dry—upon cutting straps at Beater entire bale allowed to absorb rapidly. No surface pressure on wet pulp during drying process. Only current of warm dehydrated air, produces a product that has its surface pores wide open for ready absorption in Beater and produces a pulp testing from 10 to 30 points higher than any pulp dried in sheet form.

LABOR, STEAM, POWER, ETC.

LESS LABOR than any cylinder or mechanical pressure dryer.
Less than 3,500 lbs. steam required (either live or exhaust) per ton air dried pulp, with economizer pulp can be dried with waste stack gases.

CLEANLINESS

Pulp being dried in closed insulated compartment—FIDALGO SYSTEM produces cleaner pulp.

USERS

Eight installations in United States and ten on order or under construction.
Your inspection invited.

COST

Less than any Drying Method we know of to install.

Write Us for Particulars

Technical Economist Corporation
40 RECTOR STREET NEW YORK, N. Y.
Telephone Whitehall 5243 Cable HERENCO

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05½
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¾
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)			
Plain Chip	45.00	@	—
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined— (Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.20	@	1.30
Blanks	1.70	@	1.80
Krafts	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks— (F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05¾	@	.05½
No. 1 Kraft	.06	@	.06¾
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	50.00
Chip Board	42.50	@	45.00
Wood Pulp Board (Carload Lots)	4.50	@	5.00
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70
New Blue	—	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¼
New Canvas	.08	@	.09½
New Black Mixed	.05	@	.05½

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.75
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	—	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.50	@	2.75
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.75	@	1.85
No. 1 Books, heavy	1.30	@	1.35
No. 2 Books, light	.85	@	.90
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.90	@	1.00
Old Kraft	2.00	@	2.20
Common Paper	.55	@	.60
No. 1 Mixed Paper	.60	@	.75
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.80	@	.90
Old Newspaper	.60	@	.70

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02¼	@	.02¾
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.60	@	1.75
Black Stockings	3.50	@	3.75
Roofing Stock—			
No. 1	1.75	@	1.80

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.04¼	@	.05
Common Bogus	.02¾	@	.02¾
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s	54.50	@	55.00
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	55.00	@	60.00
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.60	@	—
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.25	@	—
No. 1 Books, Heavy	1.50	@	1.60
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.25	@	1.35
White Blank News	1.50	@	—
Old Kraft	2.10	@	—
Print Manila	.70	@	.80
No. 1 Mixed Paper	.45	@	.50
Overissue News	.70	@	.80
Old Newspapers	.50	@	.60
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.40	@	1.50
Domestic	1.50	@	1.60
Manila Rope and Strings—			
Foreign	2.75	@	3.00
Domestic	—	@	3.50
Mixed Strings	.90	@	1.00
Scrap Burlaps	1.37½	@	1.50
Wool Tares, heavy	—	@	1.30
New Burlap Cutting	2.25	@	2.37½

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.11	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.09½	@	.10
Fancy	.05	@	.05½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.07	@	.07½
New Black, soft	.04	@	.04½
Khaki Cuttings	.04¾	@	.05¼
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	5.50	@	5.75
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.12½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.70	@	—
No. 2	1.50	@	—
No. 3	1.10	@	—
No. 4	1.10	@	—

Foreign Rags

(F. o. b. Boston)

Dark Cottons	—	@	1.55
New No. 1 Shirt Cuttings	11.00	@	11.50
Dutch Blues	2.00	@	—
Lace Curtains	5.25	@	5.50
New Checks & Blues	4.50	@	4.65
Old Fustians	1.80	@	—
No. 2	1.00	@	—
No. 3	—	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10½	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	31.00	@	—
Sulphite easy bleaching	62.50	@	—
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	76.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.05	@	.06½